Enterprise GIS

Spatial Systems for Land Acquisition

Leslie Armstrong and Craig Dalby

Geographic Information Systems

A Definition of GIS

GIS is a *System* of computer software, hardware and data, and personnel to help manipulate, analyze and present information that is tied to a spatial location –

- ***spatial location*** – usually a geographic location
- ***information*** – visualization of analysis of data
- ***system*** – linking software, hardware, data
- ***personnel*** – a thinking explorer who is key to the power of GIS

What is *Not* GIS ?

- **GPS – Global Positioning System**
- **A static map – paper or digital**
  - Maps are often a "product" of a GIS
  - A way to visualize the *analysis*
- **A software package**

Spatial Data

- **Estimates are that 80% of all data has a *spatial* component**
  - Data from most sciences can be analyzed "spatially"

What is GIS ?

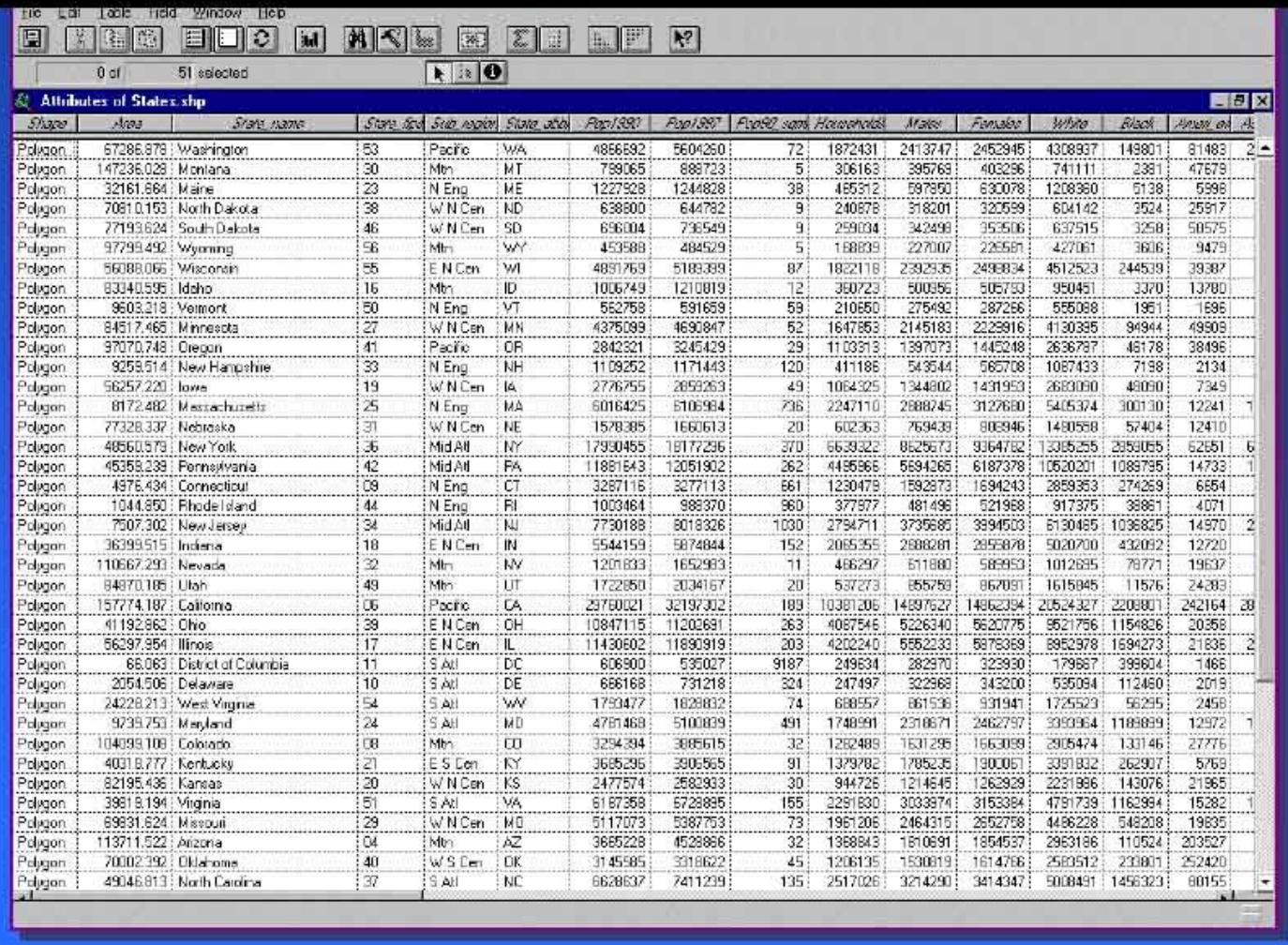
- **A method to** *visualize, manipulate, analyze, and display spatial data*
- **"Smart Maps"** *linking a database to the map*

GIS is a Kind of "Information System"

- Data Model of Geography
- Transaction Updated/Maintained
- System for Shared/Multi Purpose Use
- Rich Tool for Applications (Inquiry/Analysis/Visualization)

Database

"Not Easy to Interpret"



File Edit Table Field Window Help

0 of 51 selected

Attributes of States.shp

Shape	Area	State_name	State_fips	Stat_region	State_abbr	Pop1990	Pop1997	Pop92_sqmi	Households	Males	Females	White	Black	Amer_ind	Ai
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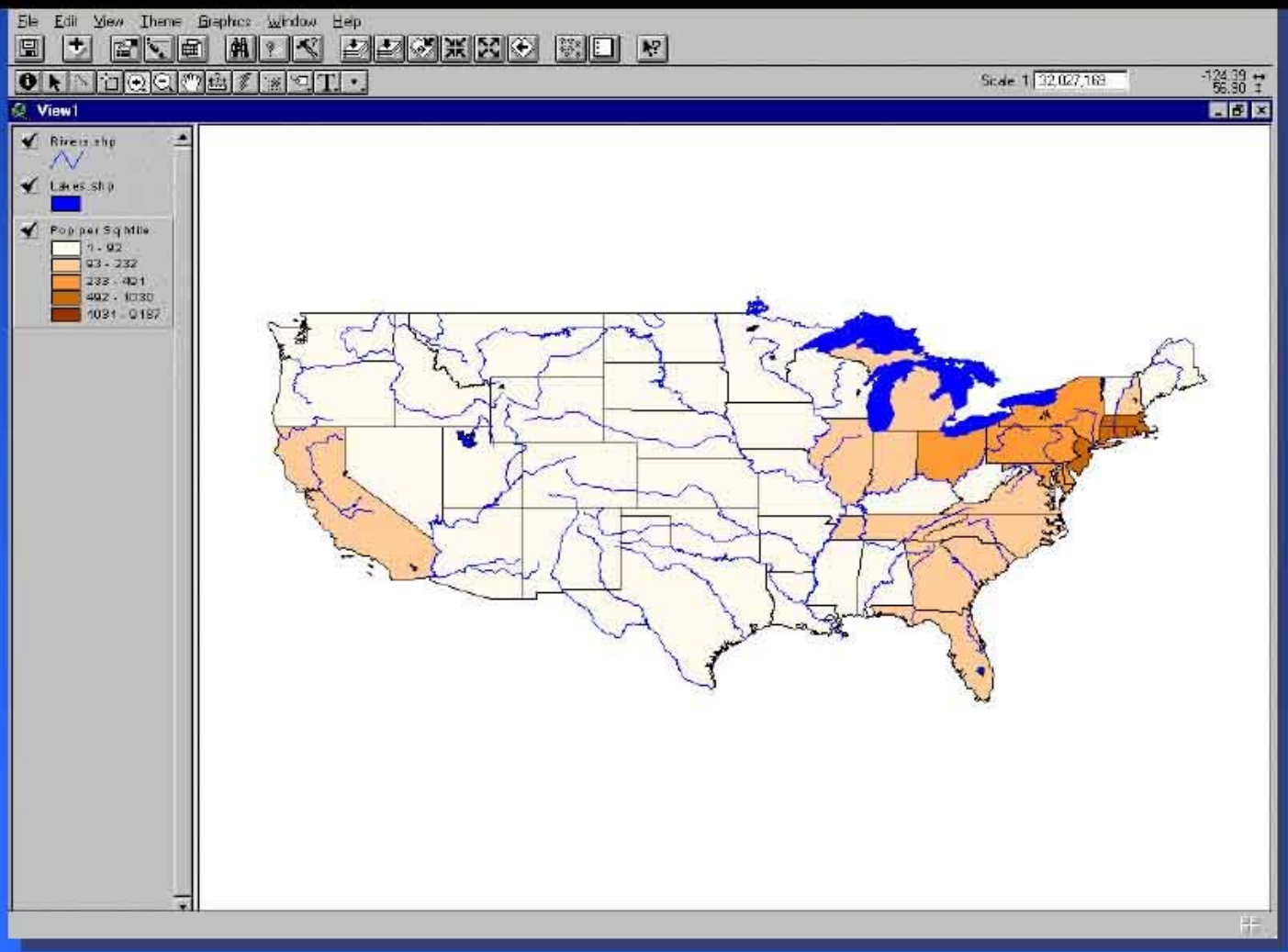
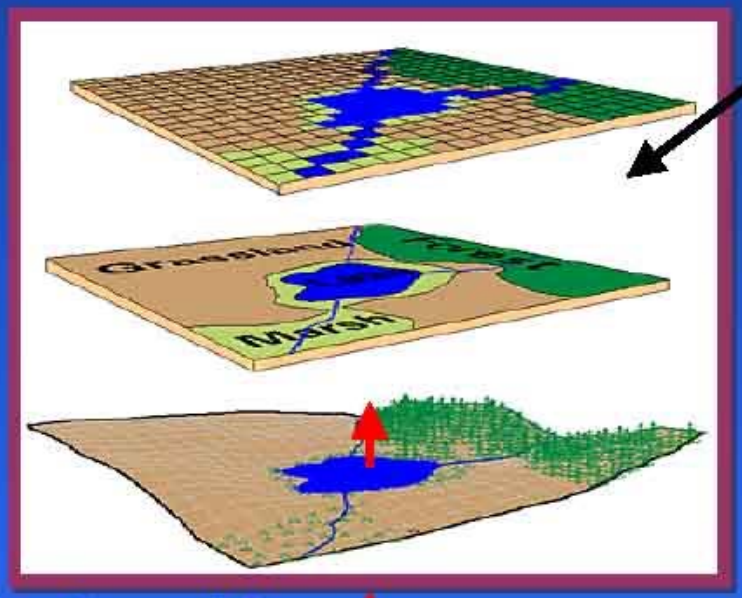
Visualization

"Worth a Thousand Words"



Two Ways to Input and Visualize Data
The World in GIS

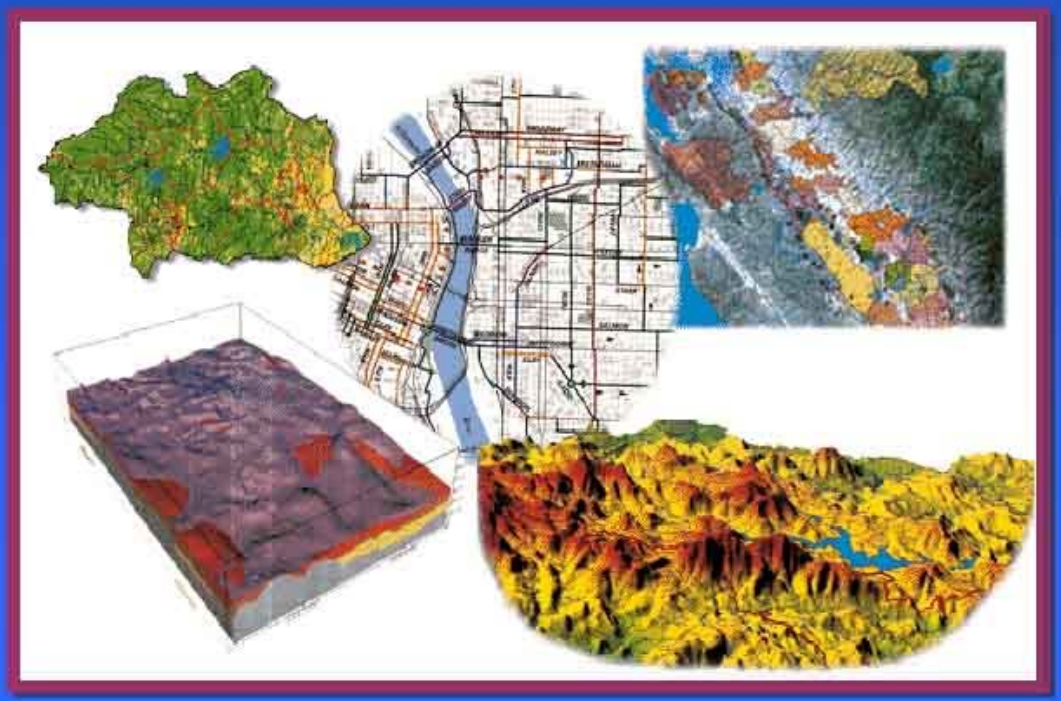


Real world

- **Raster – *Grid***
  - "pixels"
  - a location and value
  - Satellite images and aerial photos are already in this format

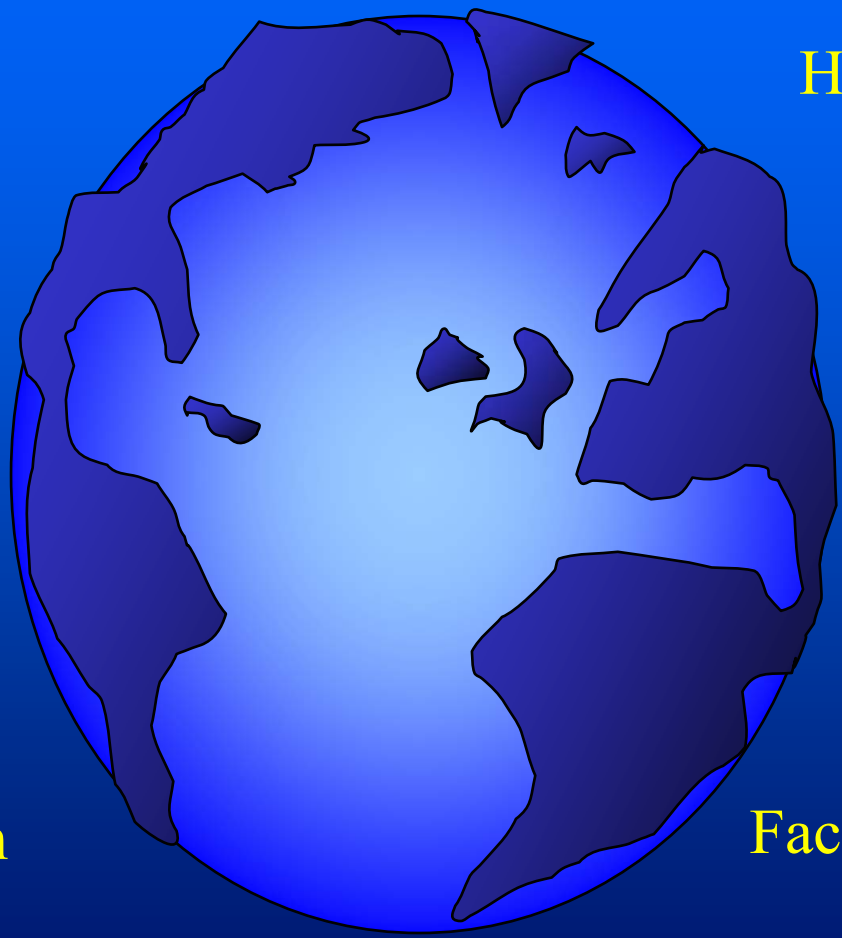
- **Vector – *Linear***
  - Points, lines & polygons
  - "Features" (house, lake, etc.)
    - Attributes
      - size, type, length, etc.

Combining Data From Many Sources

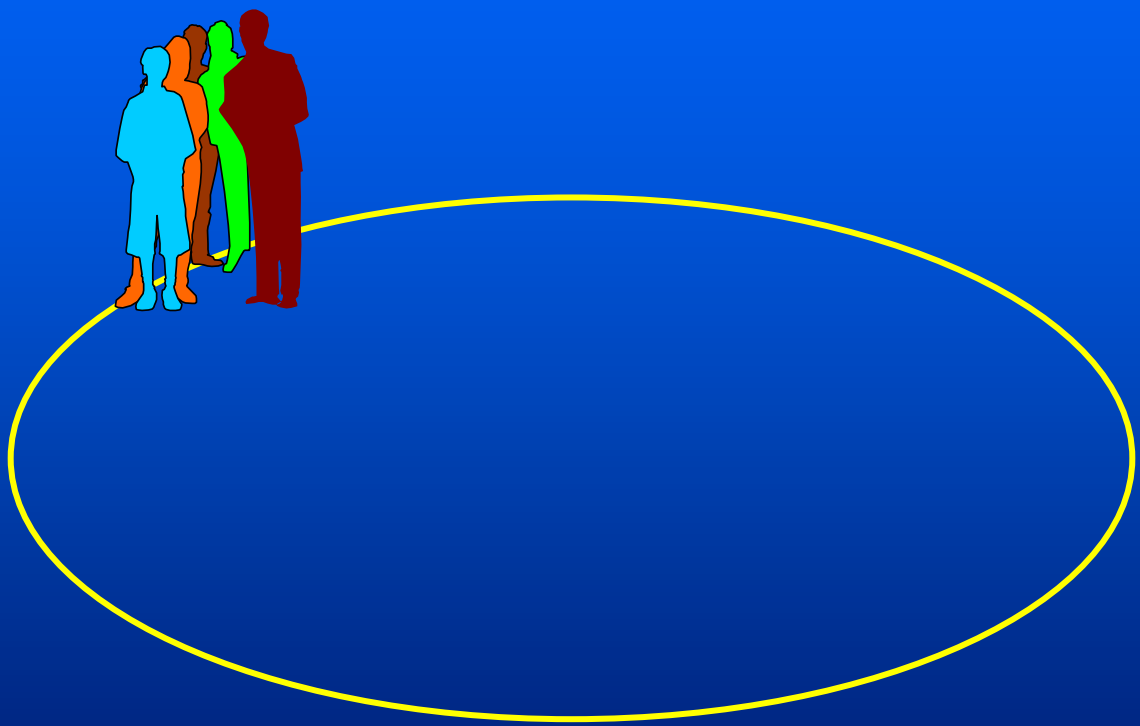


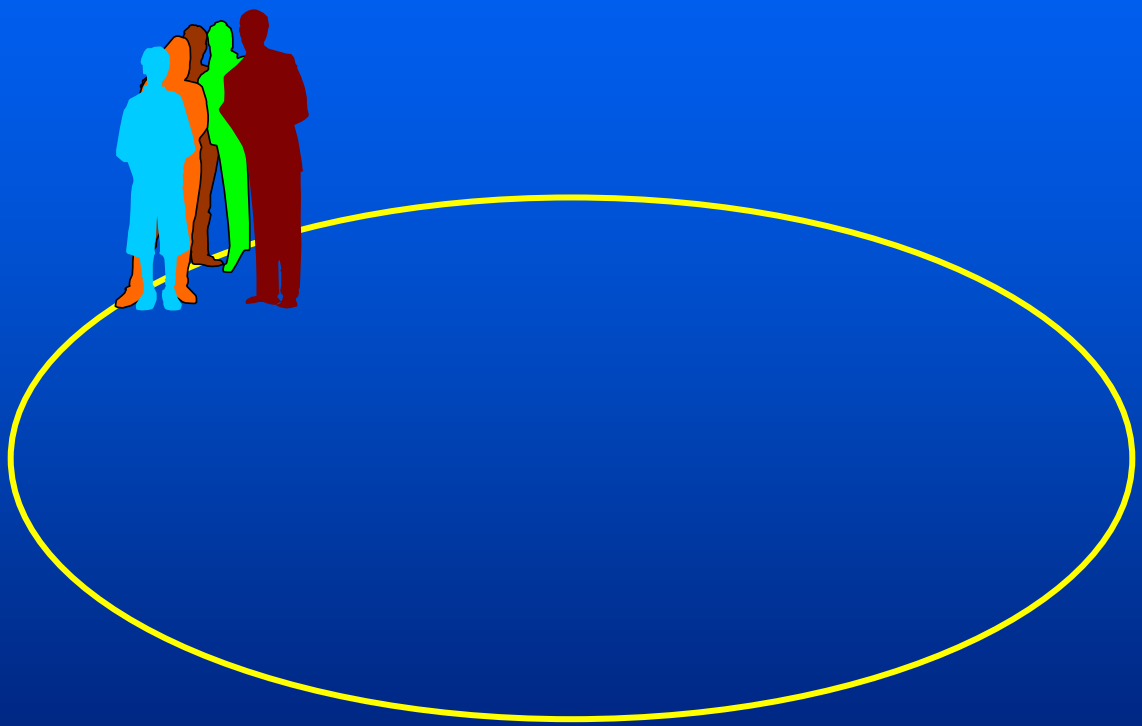
GIS Uses

Transportation
Real Estate
Monitoring
Land Use
Taxing
Mapping
Planning
Environment
Conservation
Scientific Research



Homeland Security
Logistics
Crime
Health
Energy
Fire
Education
Engineering
Public Safety
Facility Management



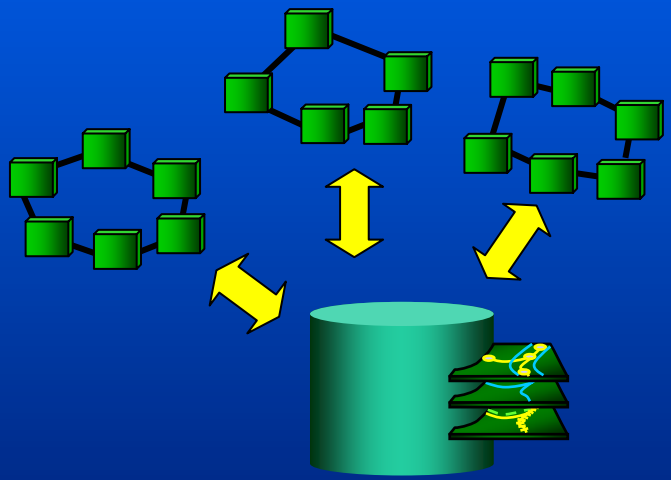


GIS Concepts

- The NPS is a Geographic Organization
- Place Is Important- People Relate To It
- Understanding Places via Visualization and Analysis
- Illustrates Accountability
- Sharing Requires Integration
  - Citizens
  - Multi Level Government
  - Education/Science

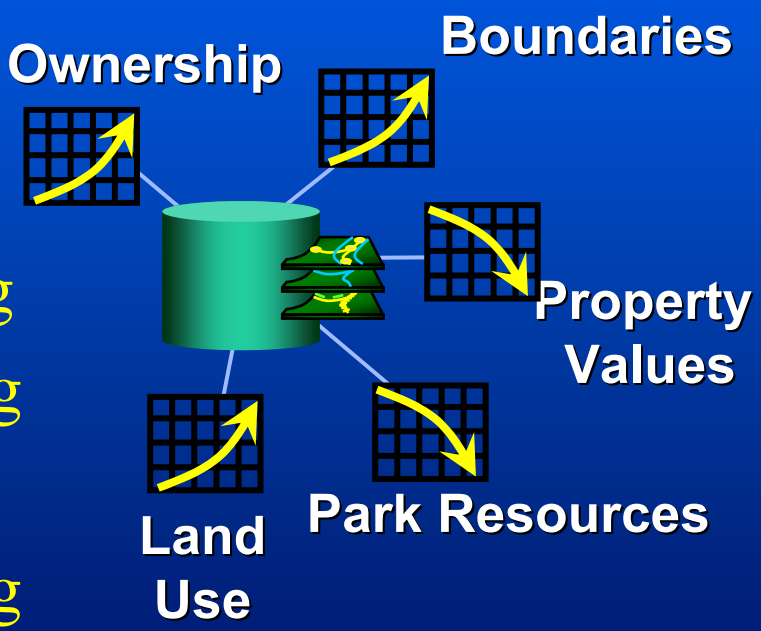
GIS a System for Integrating Information, Activities and Processes

Activities



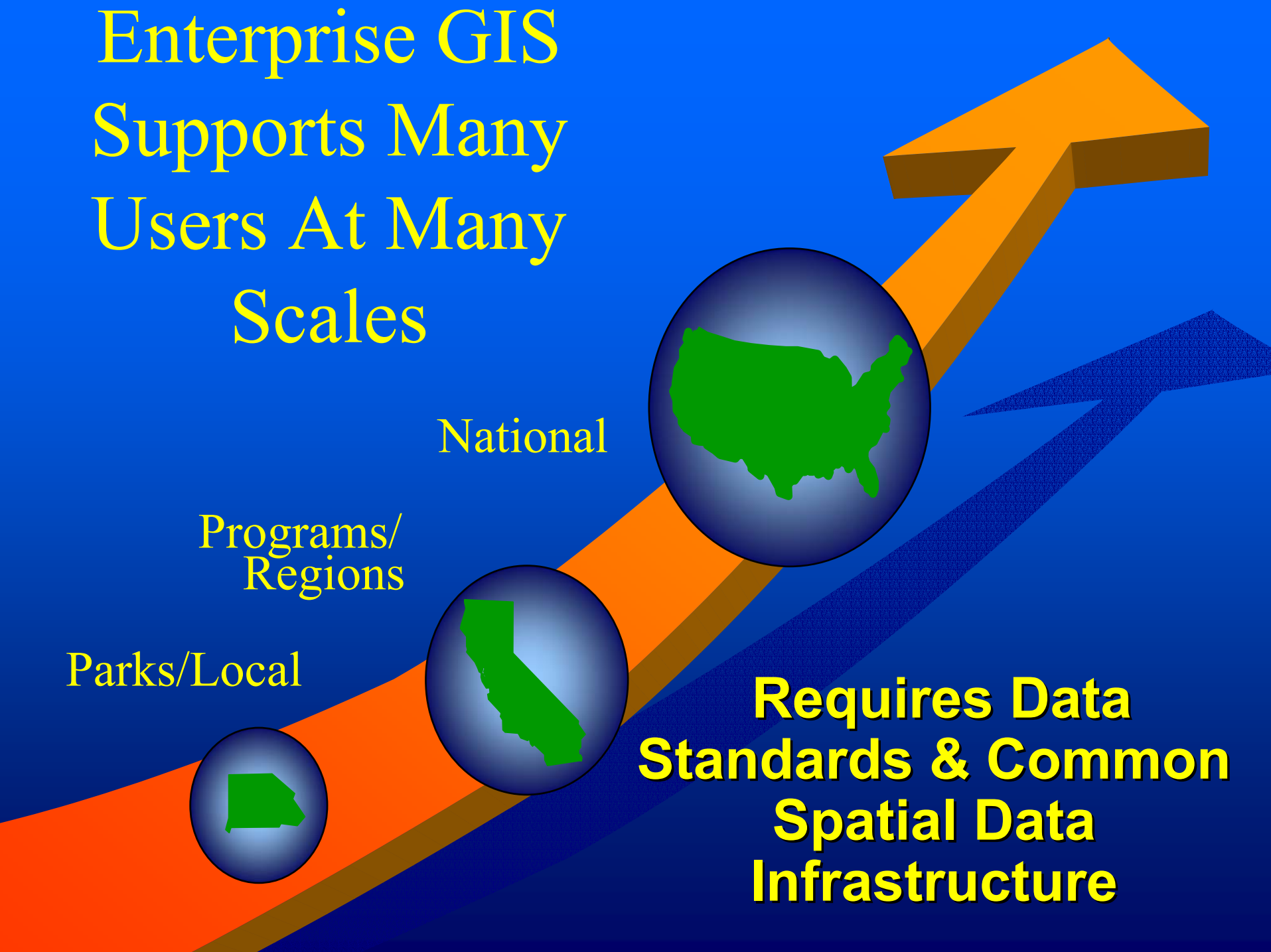
- Organizing
- Connecting
- Modeling
- Visualizing

Processes



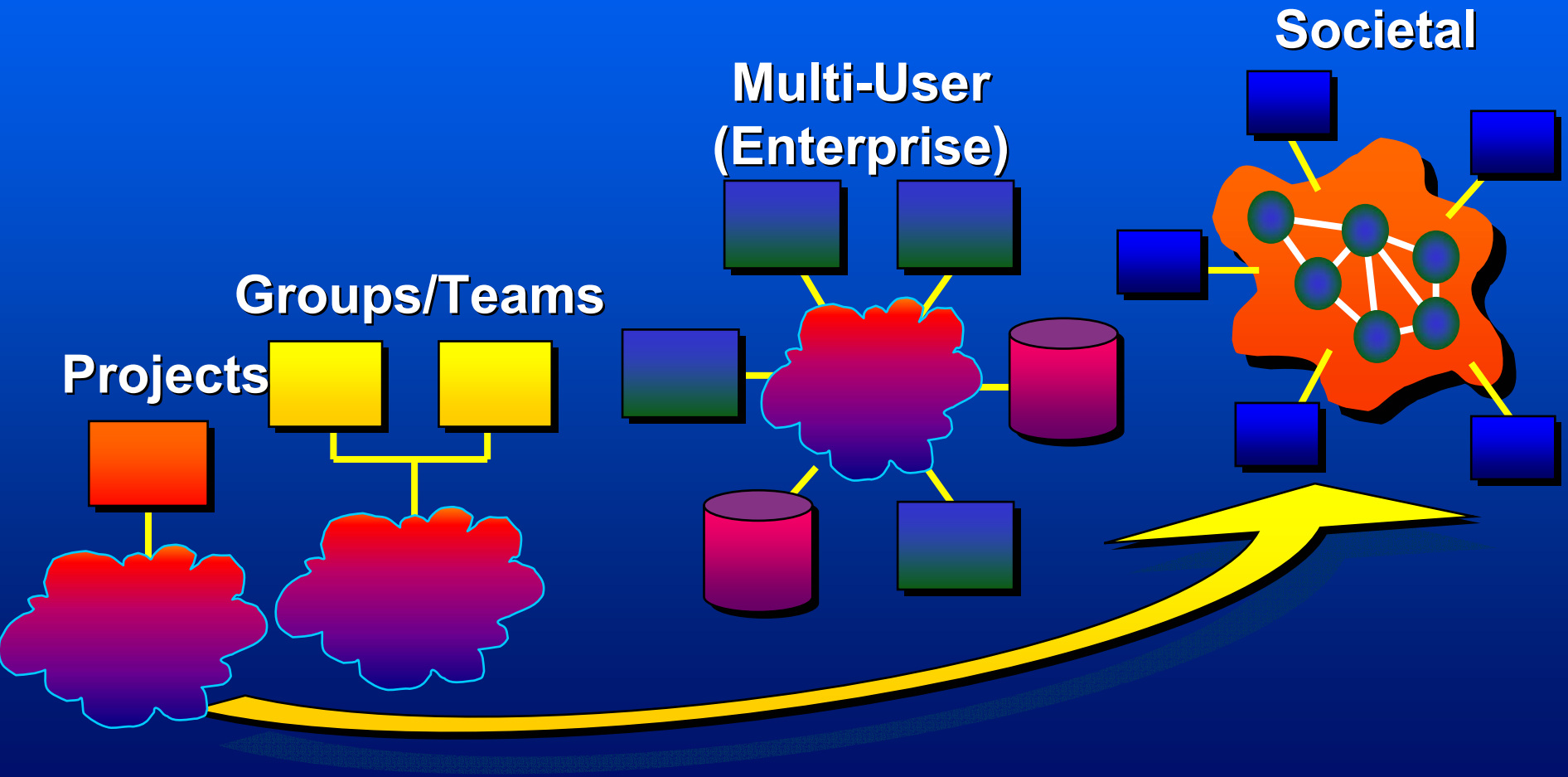
Seeing Our Parks as a System or Individually

Enterprise GIS Supports Many Users At Many Scales



Requires Data Standards & Common Spatial Data Infrastructure

Distributed GIS Supports Many Users

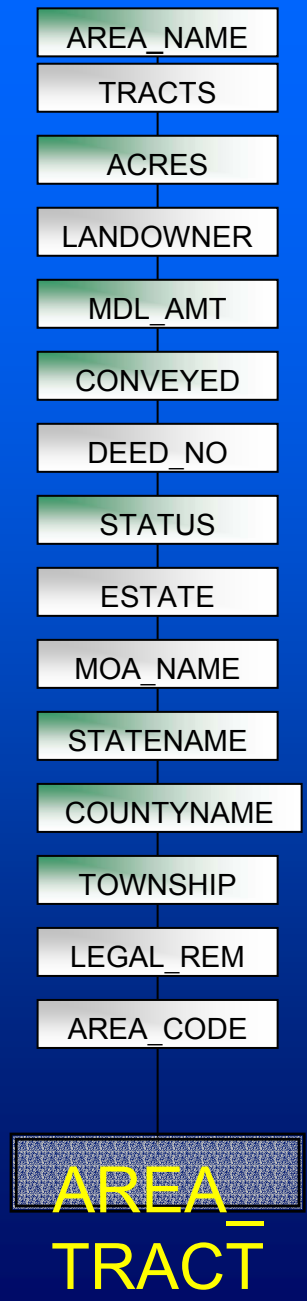


Enterprise GIS Requirements

- **Standardized Data Sets**
- **Systems and Tech. Support Network**
- **Policy Framework**
- **Leadership/Organizational**
  Buy-in
  Data Stewardship Responsibilities
  Commitment to Share Data
- **Technology and Secure Systems for Internal/External Users**
- **GIS Professionals**

Lands Data Standards

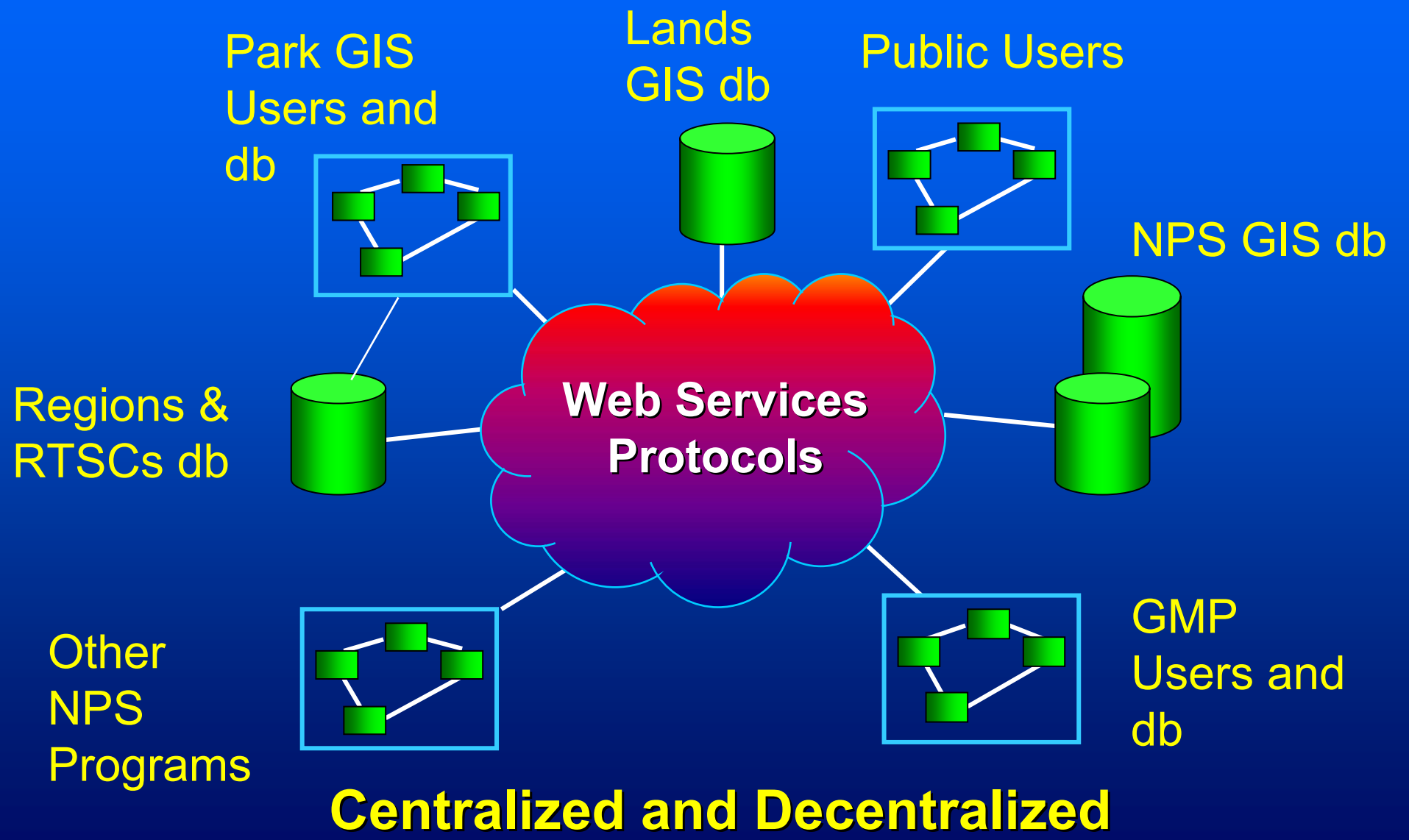
- NPS Land Acquisition Procedures Data Model for Tract Data
- Budget Map Layout
- Metadata Template



GIS Training for Lands

- Scheduled for Spring 03
- Introduction to GIS
- Spatial data and how to handle it
- CAD and GIS integration
- ArcView project
- Metadata

NPS GIS Data Network

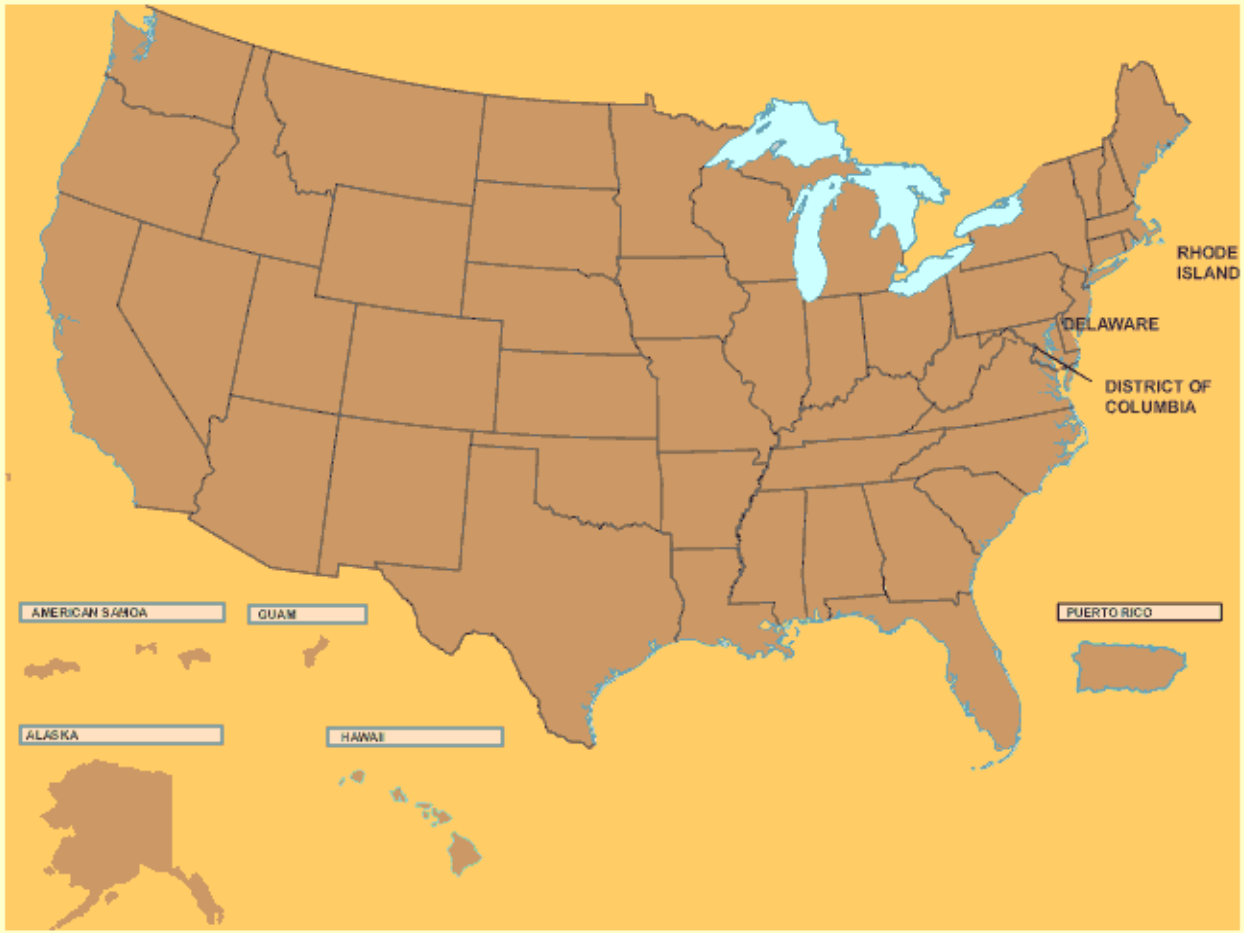


Centralized and Decentralized

NATIONAL PARK SERVICE

GIS Data and Metadata

Data Distribution Liability Statement



National Data Sets

NATIONAL PARK SERVICE

Colorado

National Park Service Homepage

Department of the Interior Homepage

NATIONAL PARK SERVICE

Colorado National Monument

Park Boundary: Preview, Metadata, FTP the Data (6 KB)

Buildings: Preview, Metadata, FTP the Data (5 KB)

Roads and Trails: Preview, Metadata, FTP the Data (28 KB)

Segment of the Colorado River Near Colorado NM: Preview, Metadata, FTP the Data (189 KB)

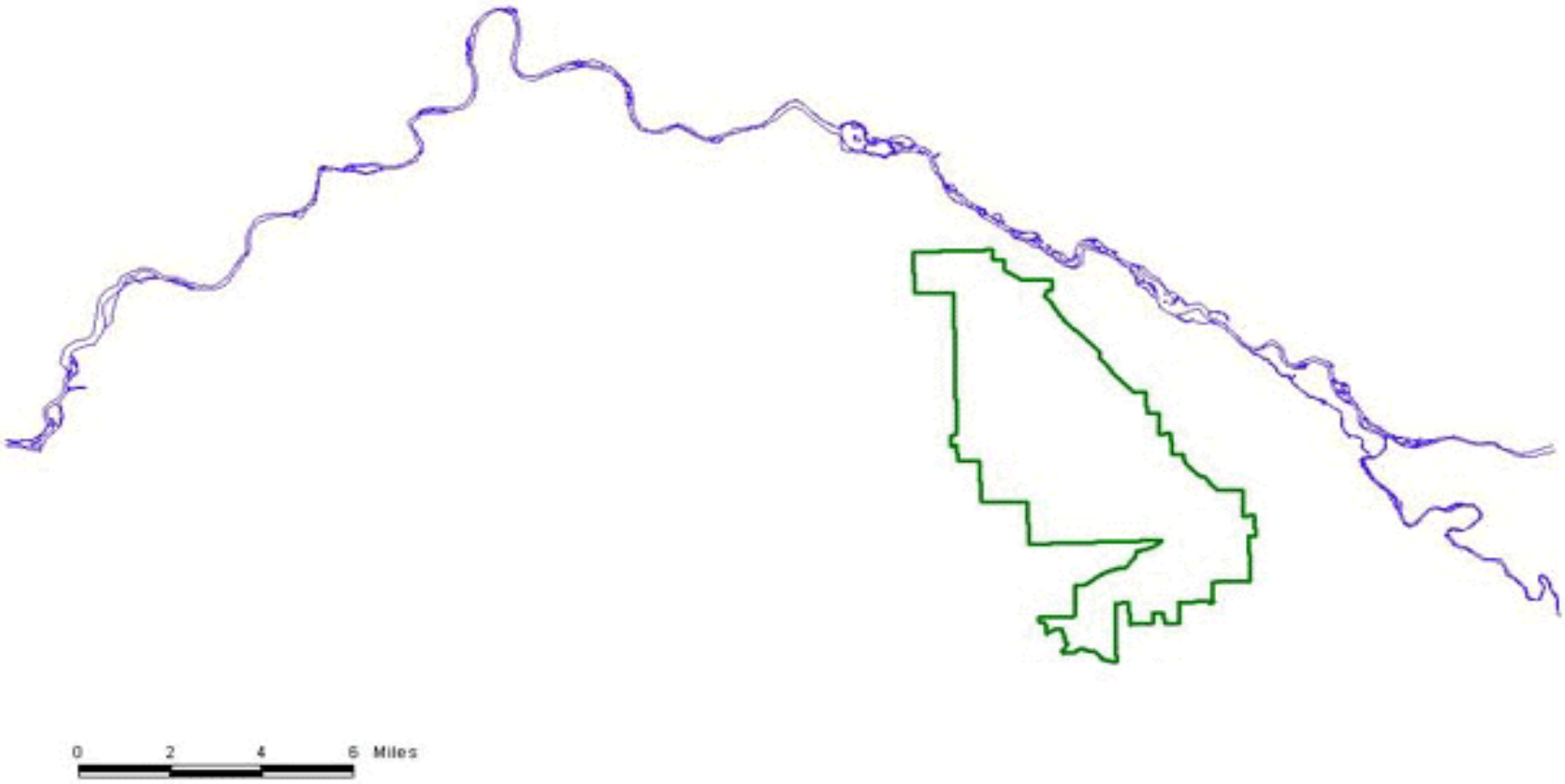
Survey Monuments: Preview, Metadata, FTP the Data (42 KB)

Tamarisk Plant Locations: Preview, Metadata, FTP the Data (610 KB)

Water Resources Division, Small-Scale Base GIS Data: Metadata, FTP the Data (1.1 MB)

Updated 2/27/01

Colorado National Monument
Colorado River



Colorado River Near Colorado National Monument

Metadata:

Identification_Information:
Citation:
Citation_Information:
Originator: National Park Service Intermountain GIS Center
Publication_Date: Unpublished Material
Title: Colorado River Near Colorado National Monument
Geospatial_Data_Presentation_Form: Map
Description:
Abstract:
This is an ARC/INFO line coverage of the segment of the Colorado River nea
Colorado National Monument. The scale is 1:24,000.
Purpose:
The intended use of all data in a park's GIS library is to support diverse park

maps.nps.gov

- Partnership with ESRI and NGS
- Park Locator/Query
- Park Atlas

National Park Service

Interactive Map Center

Park Locator | Park Atlas | Resources | Help

Select From These Choices:

[use the CTRL key to select multiple]

1 Topics / Interests

- --- [none selected] ---
- American Presidents
- Caves

2 Activities

- --- [none selected] ---
- Auto Touring
- Biking

3 Park Type

- --- [none selected] ---
- Battlefield/Military Park
- Cemetery

4 Cultural Heritage

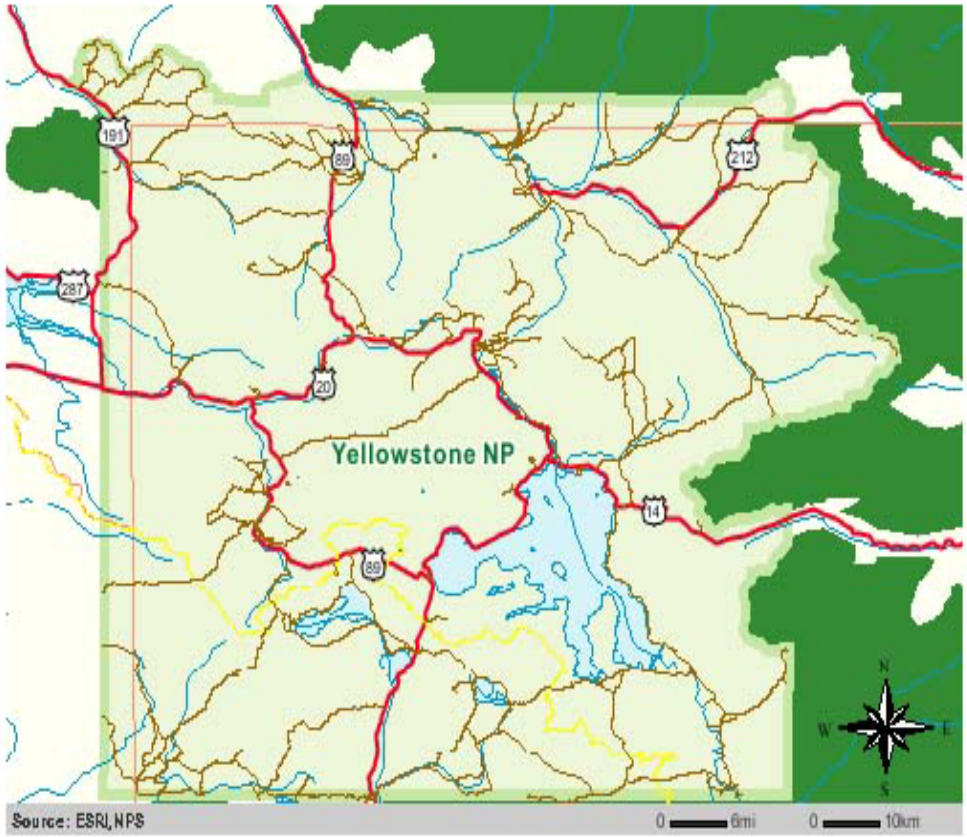
- --- [all selected] ---
- African American
- Alaska Native

5 Select a State

- --- [none selected] ---
- [select all states]
- Alabama

Find a Park | Reset

Map Extent | Zoom In | Zoom Out | Pan | Identify a park | Identify



Yellowstone NP	Park Atlas	WebSite

Special Topics: Geysers/Hot Spring , Volcanoes ,

Recreation Activities: Auto Touring , Biking , Boating , Camping , Climbing , Education Activities , Fishing , Hiking , Horseback Riding , Swimming , Wilderness Areas , Wildlife View ,

http://gnstaging.esri.com/nps/parkatlas/jsp/atlas.jsp?searchString= - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Search Favorites History

Address http://gnstaging.esri.com/nps/parkatlas/jsp/atlas.jsp?searchString= Go Links

National Park Service

Interactive Map Center

Park Locator | Park Atlas | Resources | Help

Map Extent | Zoom In | Zoom Out | Pan | Select Map Layer to Identify | Identify

Refresh Map | Stop

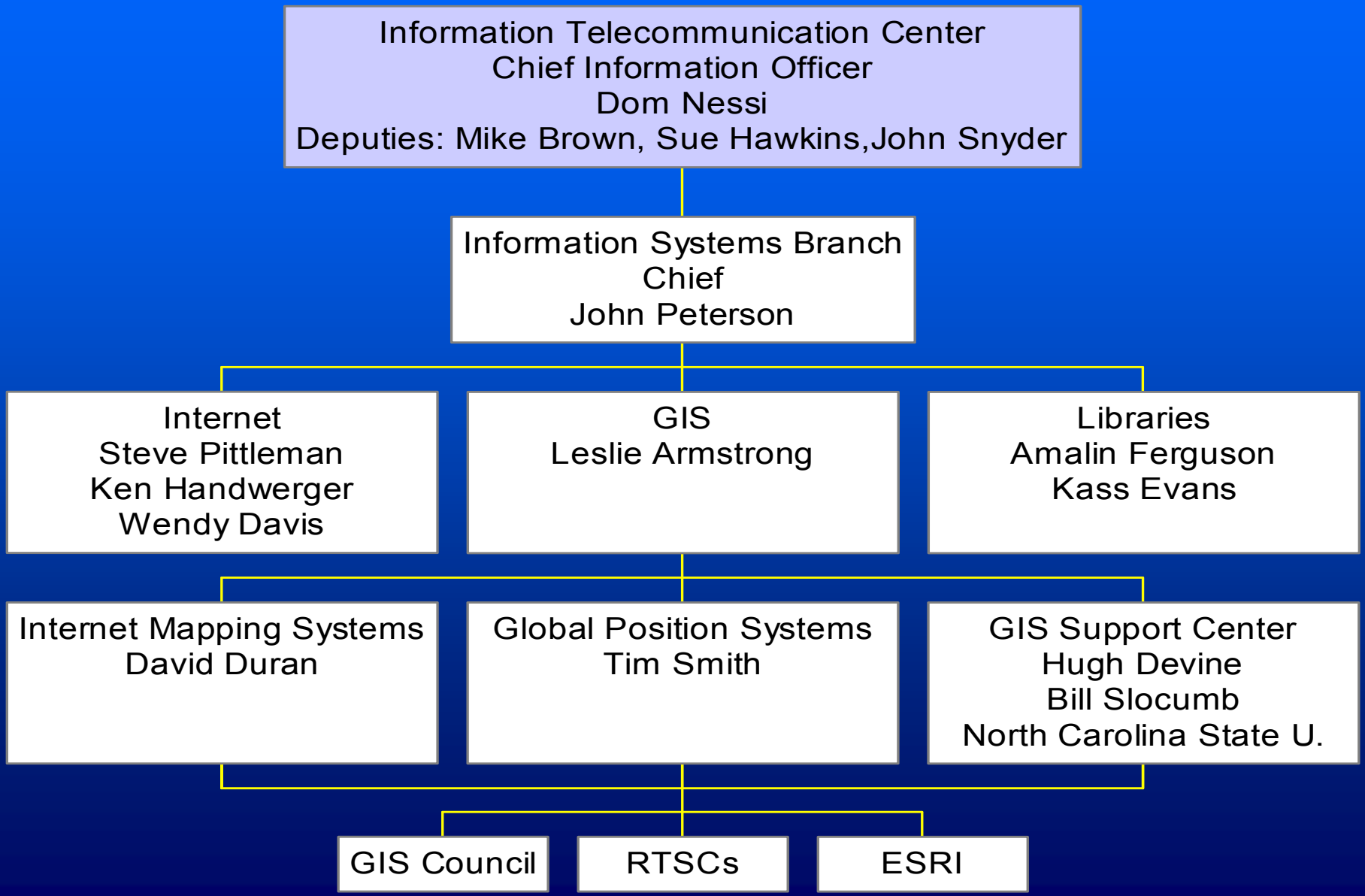
on/off	Layer
☑	Park Trails
☐	Long Trails
	Appalachian Trail
	California Trail
	El Camino Real de Tierra Adentro
	Marmon Pioneer Trail
	North County Trail
	Oregon Trail
	Pony Express Trail
	Trail of Tears
☑	Highways
	Highways
	US Highways
	Major Streets

Gettysburg NMP GO!

Done Internet

Start http://gnstaging.esri.... 3 - Paint 3:03 PM

NPS GIS Support Infrastructure



NPS GIS Program Status

- Enterprise GIS License in 03
- Over 1200 GIS license seats
- 9 Regional GIS Support Centers
- GIS Council
- Standard Application Development
- Standard Data Inventories
- NPS Map Center for the Public
- Spatial Odyssey 2003 - Dec 1-5

NPS GIS Support Center at North Carolina State University

- National Program Support & Consultation
- Training
- NPS GIS Data Clearinghouse
- Remote Sensing
- Data Conversion and Management

Regional GIS Coordinators & Technical Support Centers

- plan and implement GIS
- distribute ESRI GIS software
- develop and manage GIS data bases
- develop GIS products and applications
- training
- on/off site technical support
- coordination of GIS initiatives/partnerships

Program Offices

Stewards: set standards and SOPs, info. management, data and system integration, develop applications/models and training

- Lands-Tony Marshall
- Fire - Gladys Crabtree
- National Trails - Helen Scully
- Law Enforcement - Dave Mulholland
- Natural Resources - Joe Gregson
- Cultural Resources - John Knoerl

GIS Technology

- ESRI GIS Software - desktop, mobile, IMS
  Enterprise software license for 03
- GIS Data Clearinghouse - Z39.50
- ORACLE RDBMS
  Many already in development
  Enterprise Architecture Workshop
  scheduled for Oct. 02
  Enterprise license already in place
- New full-time GPS Coordinator

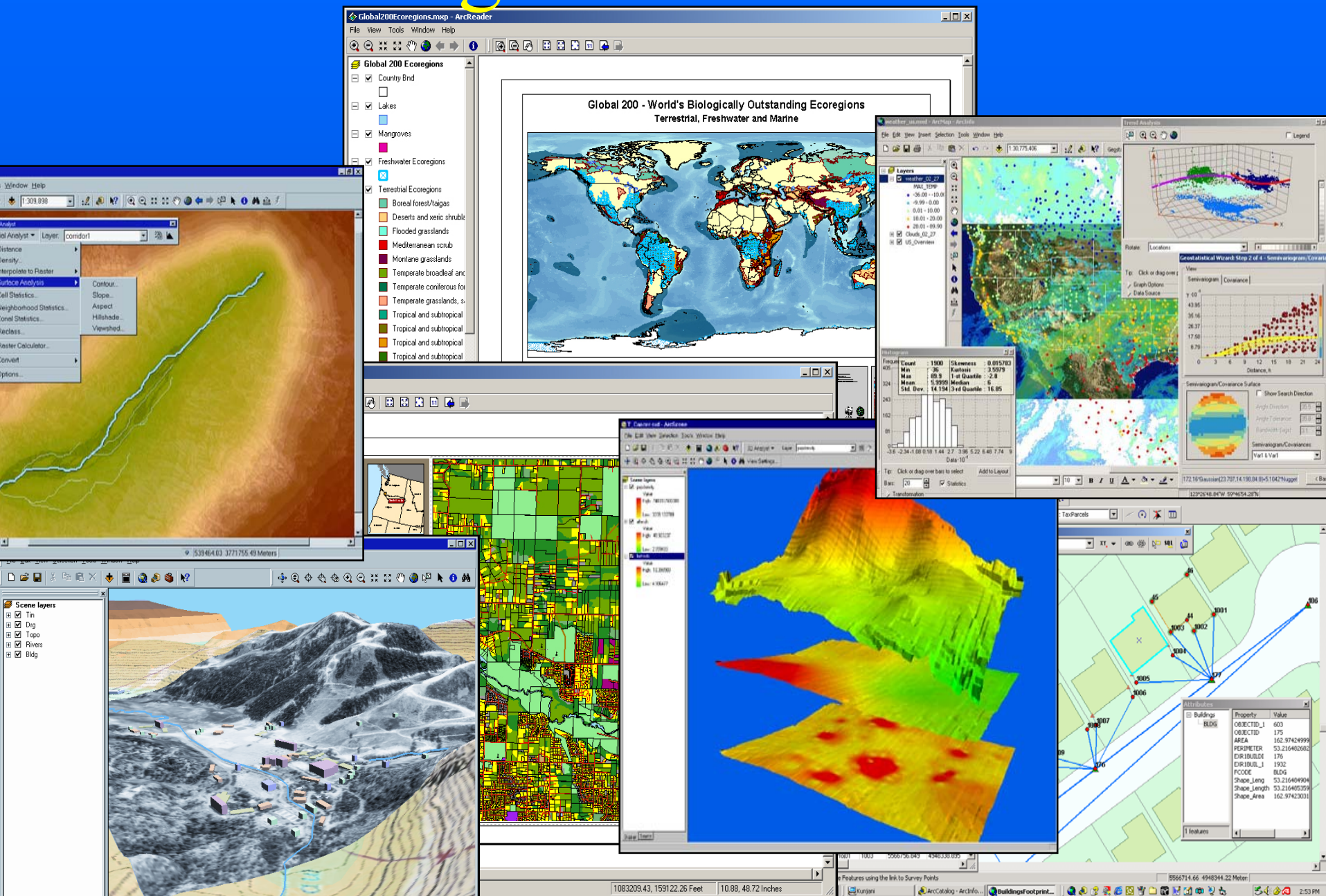
Enterprise GIS Requirements

- **Standardized Data Sets**
- **Systems and Tech. Support Network**
- **Policy Framework**
- **Leadership/Organizational**
  Buy-in
  Data Stewardship Responsibilities
  Commitment to Share Data
- **Technology and Secure Systems for Internal/External Users**
- **GIS Professionals**

GIS Professionals

- At all NPS levels - parks to GIS Council
- Training: on-line, NCSU, ESRI, ROs
- Spatial Odyssey 03
- No GIS Series
- Bench mark PDs on-line
- More data management duties
- Understand user needs
- **Above All . . . Creating A Spirit Of Collaboration**

Using GIS for Lands

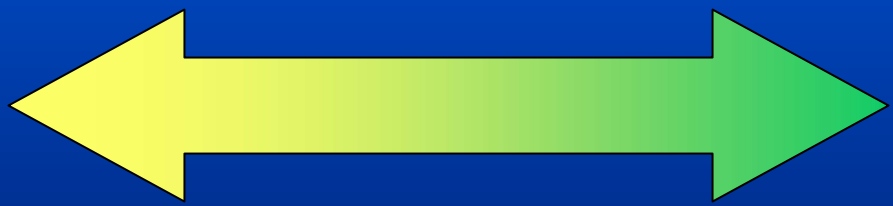


CAD versus GIS

- Not an either/or situation
- Software vendors invading each other's turf
- Most distinctions are disappearing

CAD versus GIS

The difference is a matter of degree

CAD-like  GIS-like

CAD versus GIS

- CAD is display oriented
  - stores information about the data elements
  - focus is on presentation
- GIS is database oriented
  - stores information about the features
  - focus is on analysis and synthesis

CAD versus GIS

CAD-like	GIS-like
Data element attributes	Feature attributes
Many data layers per file	One data layer per file
Neat lines, insets	Features only
Page coordinates	Georeferenced
Standalone data	Linked with other data

Case Studies

- Dam Removal at Olympic
- Tract Management at City of Rocks
- Cultural Landscape Preservation at Whitman Mission
- Database Integration at Antietam

Dam Removal at Olympic

Olympic has a variety of resources, influenced by its cool, damp climate.

…as well as a dam inside the park,

…and one just outside the park.

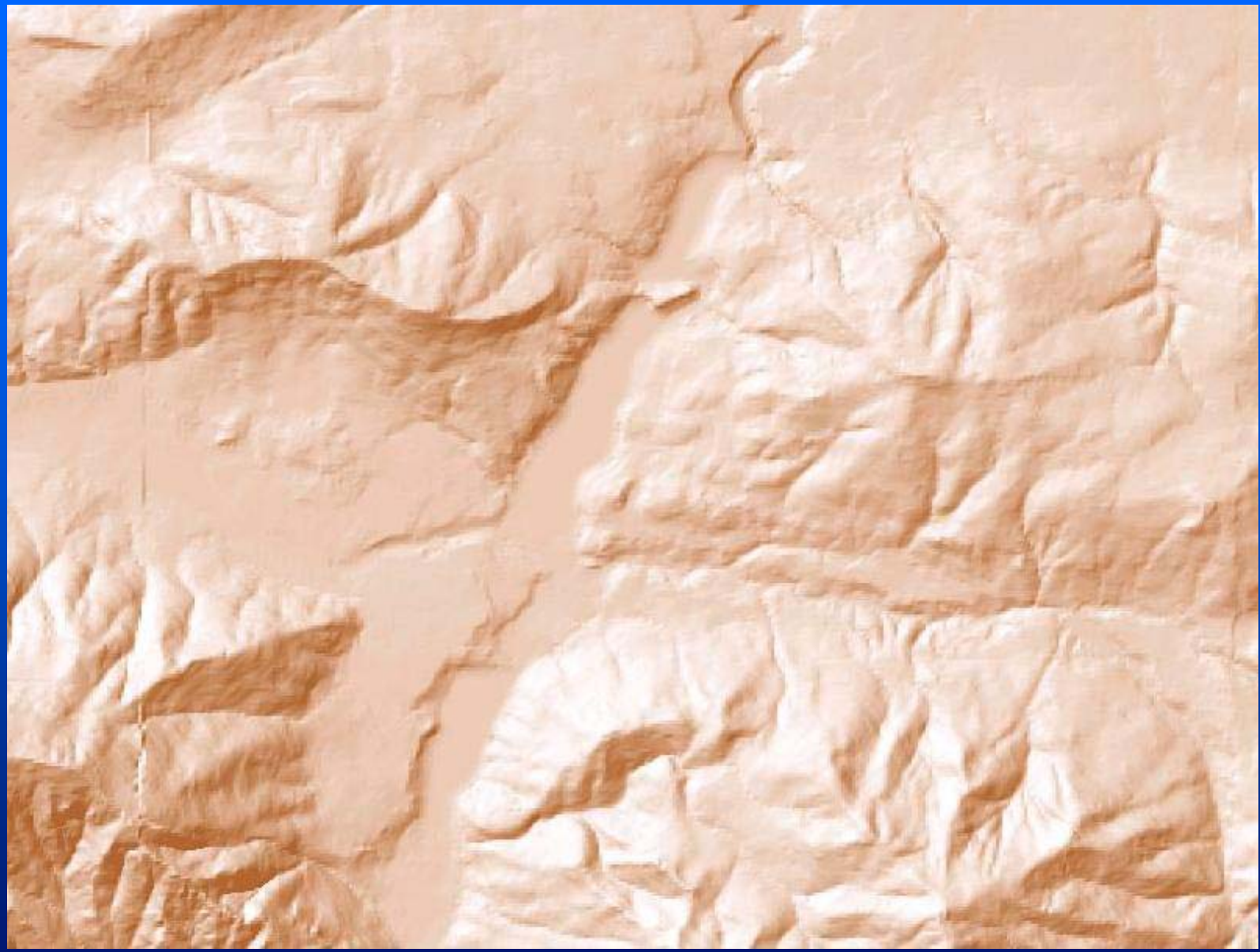
With no fish ladders, the dams prevent the salmon from getting here: the upper Elwha.

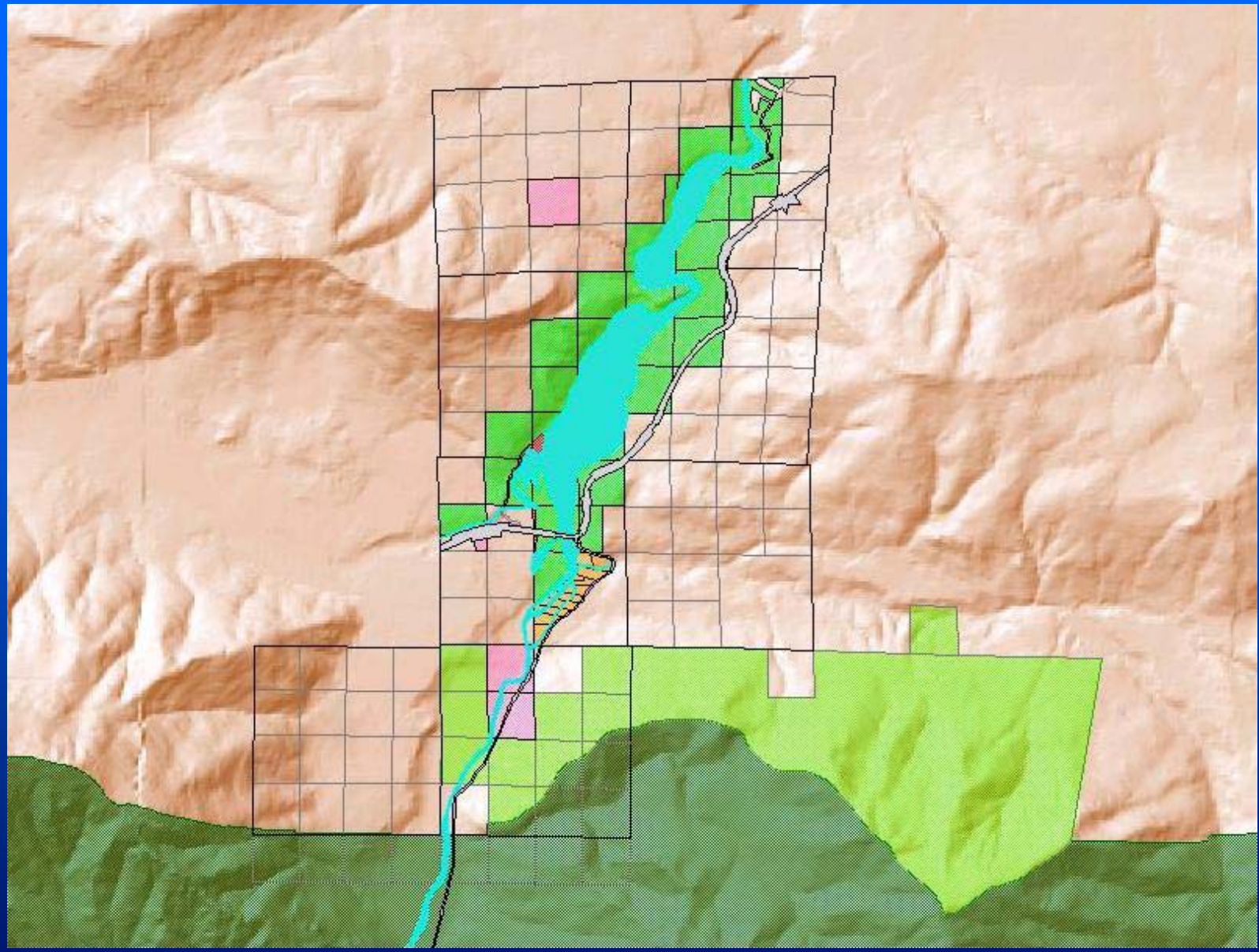
The fish want this...

to look like this:

The first step was land acquisition.

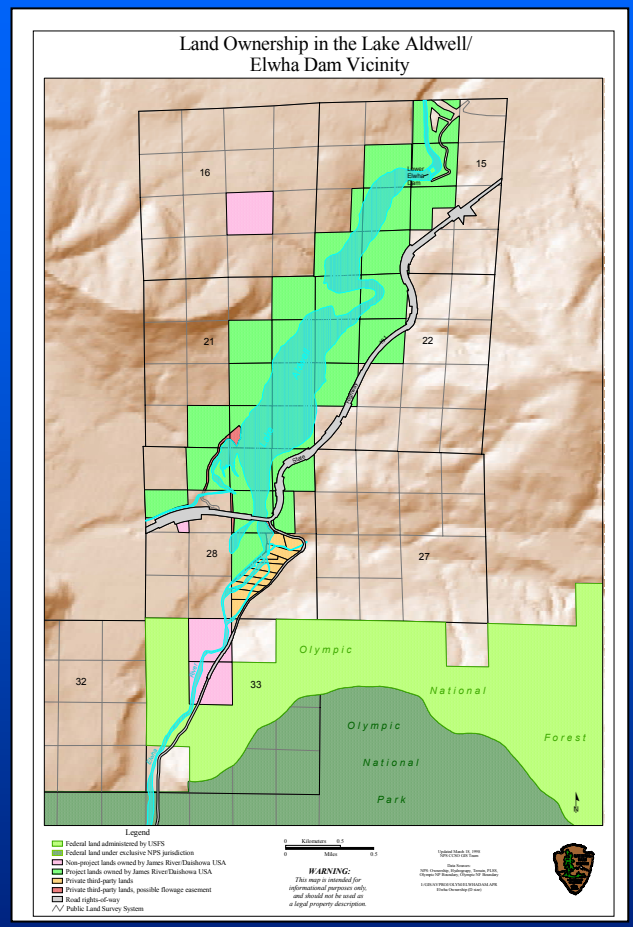
Real Estate Specialist wanted a map showing various land owners, highway corridor in relation to the terrain and the lake.





Map Users

- Real Estate Specialists
- Resource Managers
- Tribal Members
- Regulatory Agencies
- Private Land Owners
- Local Government



Recap

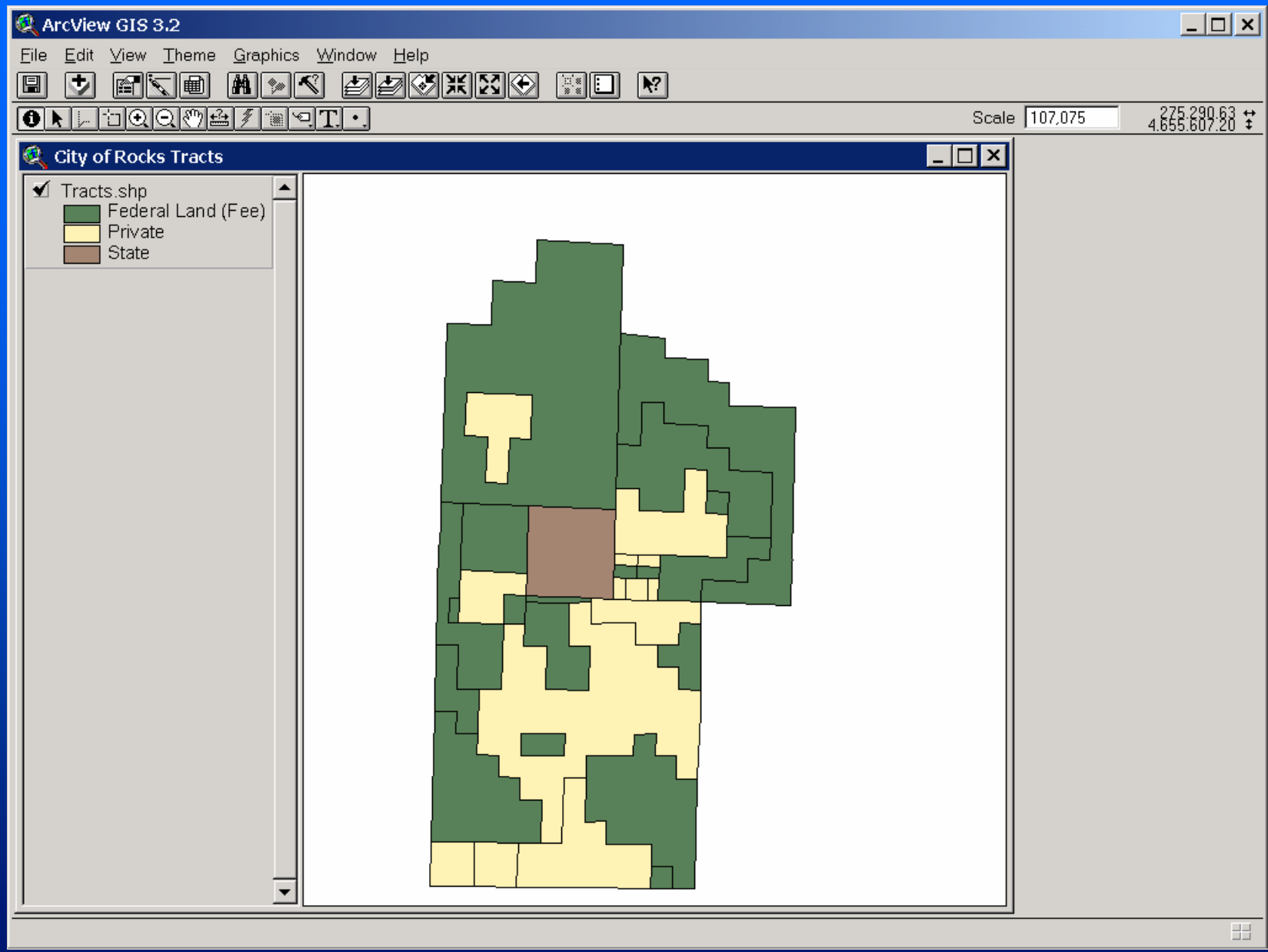
Georeferenced data can be combined with other data layers for depicting relationships among features.

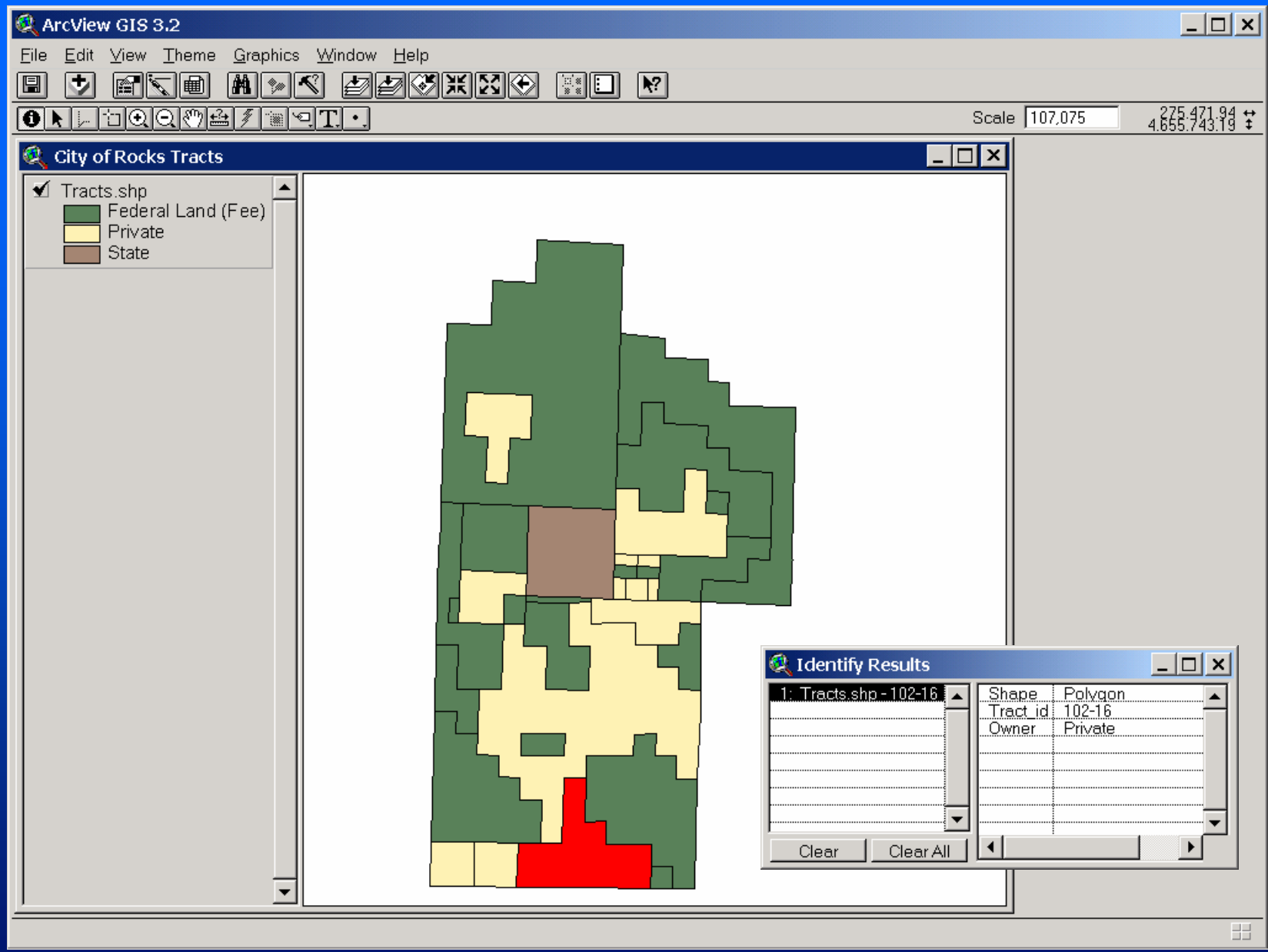
Tract Management at City of Rocks

A different kind of park,
City of Rocks National Reserve
is an NPS unit managed by Idaho State Parks.

Public lands

…and private lands.


ArcView GIS 3.2
File Edit View Theme Graphics Window Help
Scale 107,075
275,290.63
4,655,607.20
City of Rocks Tracts
Tracts.shp
Federal Land (Fee)
Private
State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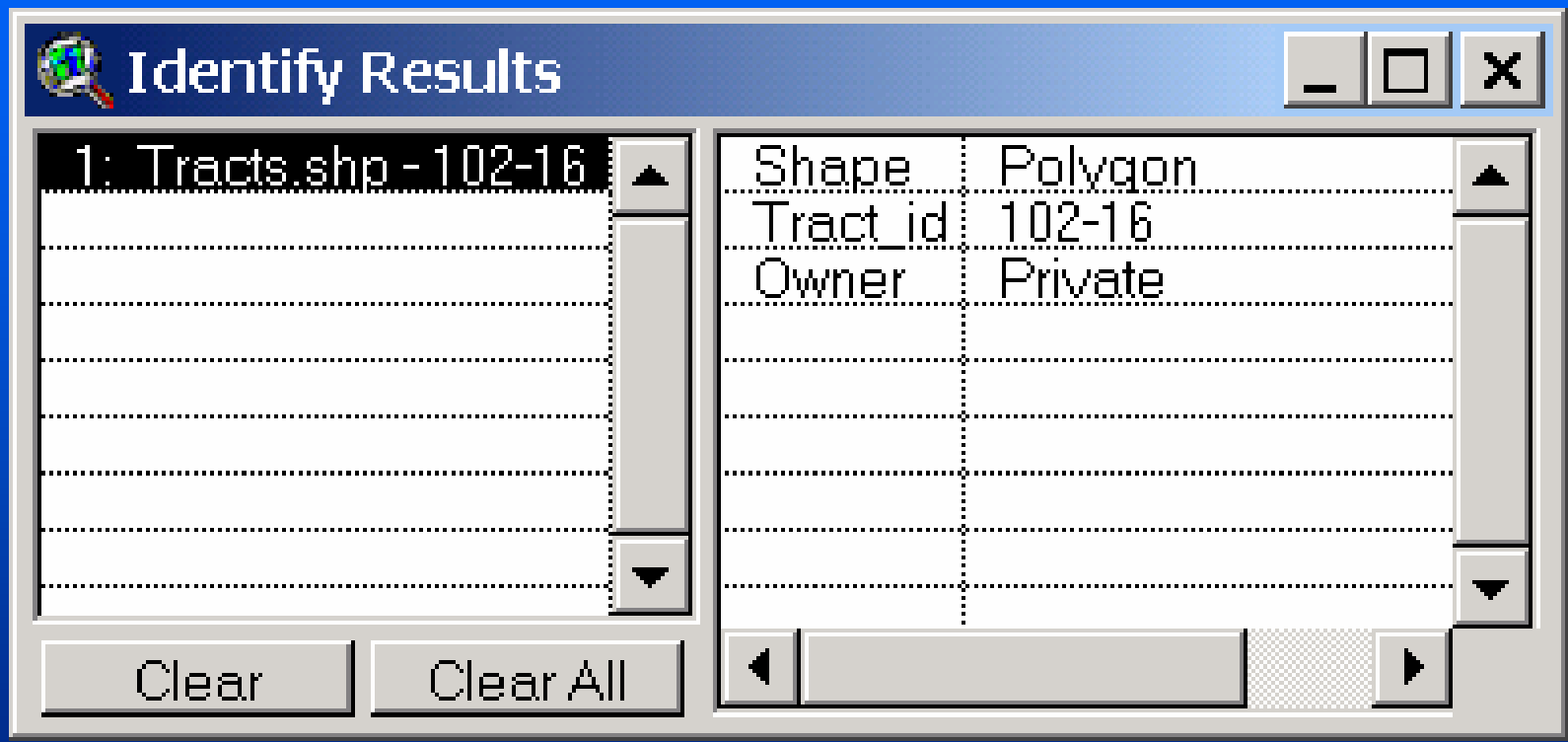
City of Rocks Tracts
Tracts.shp
Federal Land (Fee)
Private
State
Identify Results
1: Tracts.shp - 102-16
Shape Polygon
Tract_id 102-16
Owner Private
Clear
Clear All


Identify Results
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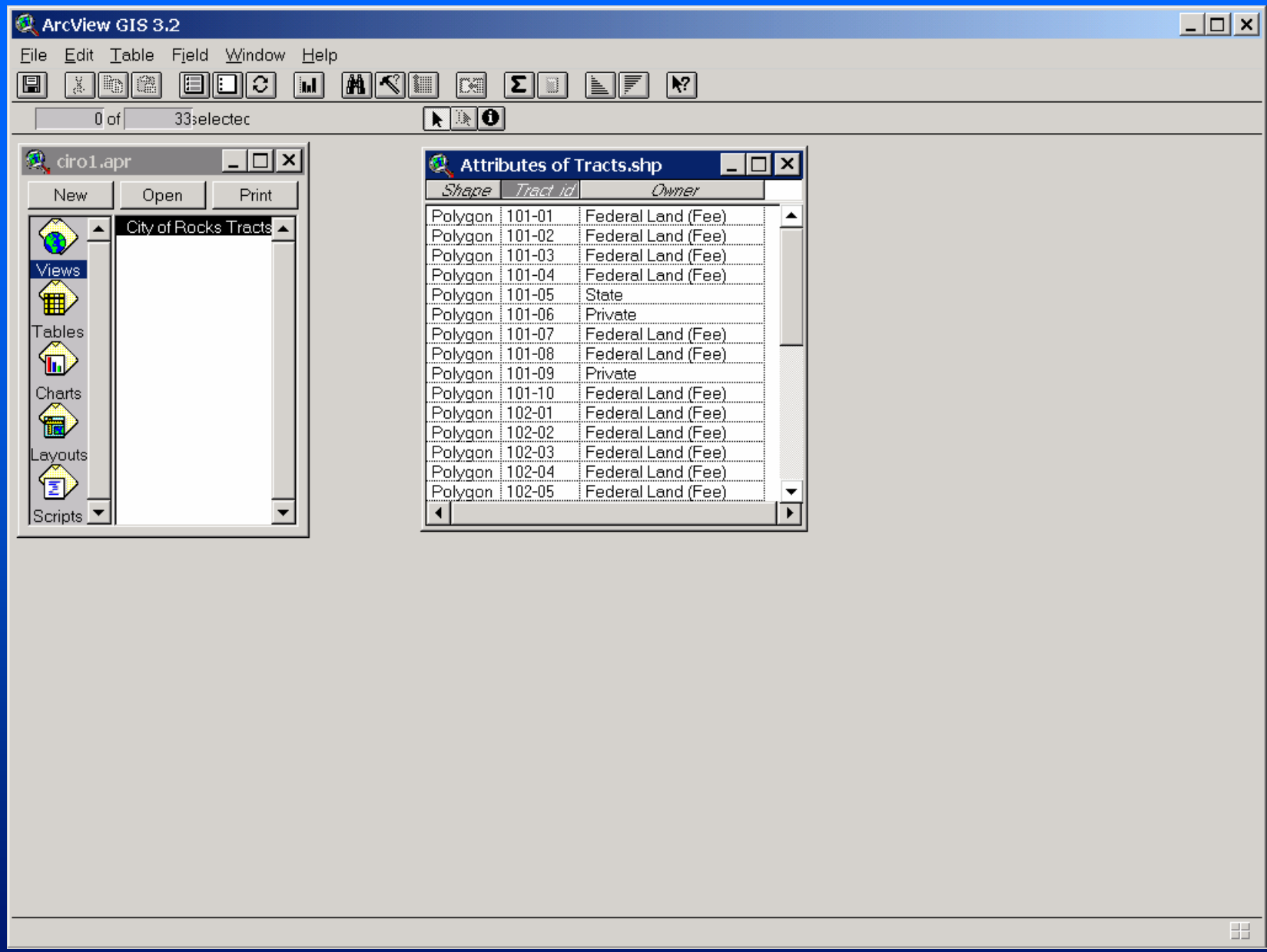
Shape
Polygon
Tract_id
102-16
Owner
Private
Clear
Clear All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0 of 33 selected
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New
Open
Print
Views
Tables
Charts
Layouts
Scripts
City of Rocks Tracts
Attributes of Tracts.shp
Shape Tract_id Owner
Polygon 101-01 Federal Land (Fee)
Polygon 101-02 Federal Land (Fee)
Polygon 101-03 Federal Land (Fee)
Polygon 101-04 Federal Land (Fee)
Polygon 101-05 State
Polygon 101-06 Private
Polygon 101-07 Federal Land (Fee)
Polygon 101-08 Federal Land (Fee)
Polygon 101-09 Private
Polygon 101-10 Federal Land (Fee)
Polygon 102-01 Federal Land (Fee)
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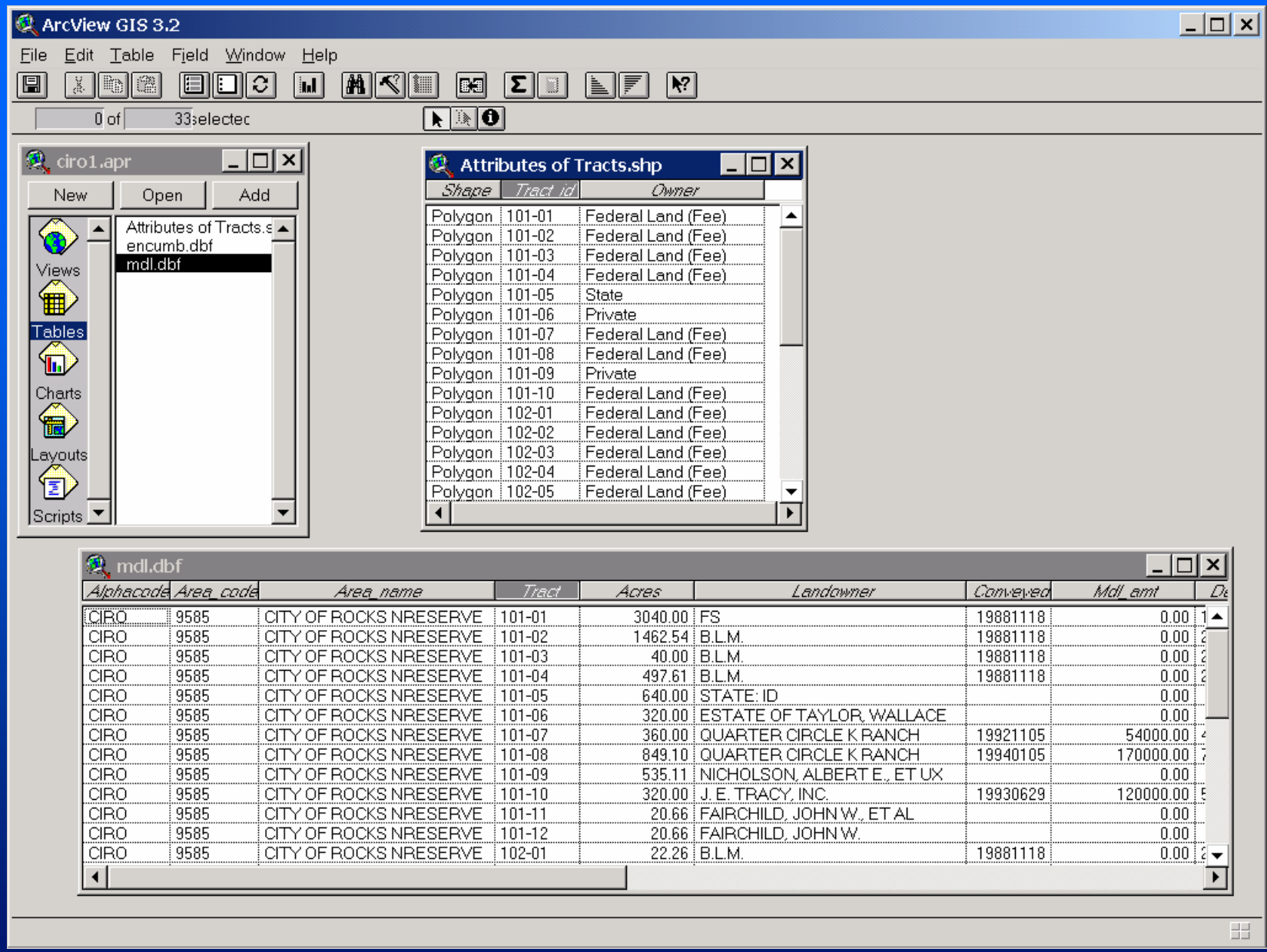
Polygon 102-04 Federal Land (Fee)
Polygon 102-05 Federal Land (Fee)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New Open Add
Views
Tables
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Scripts
Attributes of Tracts.s
encumb.dbf
mdl.dbf
Attributes of Tracts.shp
Shape Tract_id Owner
Polygon 101-01 Federal Land (Fee)
Polygon 101-02 Federal Land (Fee)
Polygon 101-03 Federal Land (Fee)
Polygon 101-04 Federal Land (Fee)
Polygon 101-05 State
Polygon 101-06 Private
Polygon 101-07 Federal Land (Fee)
Polygon 101-08 Federal Land (Fee)
Polygon 101-09 Private
Polygon 101-10 Federal Land (Fee)
Polygon 102-01 Federal Land (Fee)
Polygon 102-02 Federal Land (Fee)
Polygon 102-03 Federal Land (Fee)
Polygon 102-04 Federal Land (Fee)
Polygon 102-05 Federal Land (Fee)
mdl.dbf
Alphacode Area_code Area_name Tract Acres Landowner Conveyed Mdl_amt
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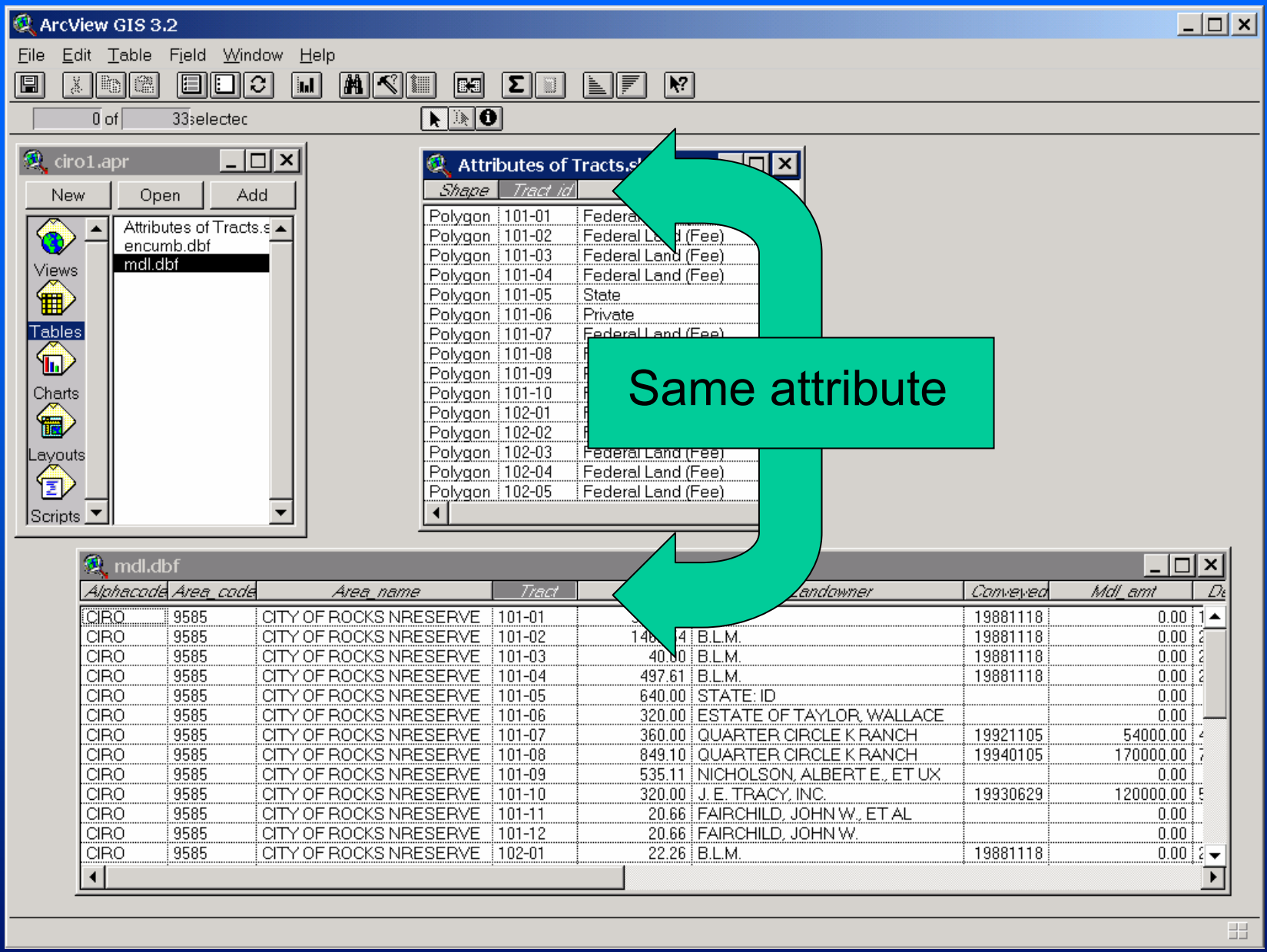
CIRO 9585 CITY OF ROCKS NRESERVE 101-02 1462.54 B.L.M. 19881118 0.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-03 40.00 B.L.M. 19881118 0.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-04 497.61 B.L.M. 19881118 0.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-05 640.00 STATE: ID 0.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-06 320.00 ESTATE OF TAYLOR, WALLACE 0.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-07 360.00 QUARTER CIRCLE K RANCH 19921105 54000.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-08 849.10 QUARTER CIRCLE K RANCH 19940105 170000.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-09 535.11 NICHOLSON, ALBERT E., ET UX 0.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-10 320.00 J. E. TRACY, INC. 19930629 120000.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-11 20.66 FAIRCHILD, JOHN W., ET AL 0.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-12 20.66 FAIRCHILD, JOHN W. 0.00
CIRO 9585 CITY OF ROCKS NRESERVE 102-01 22.26 B.L.M. 19881118 0.00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New
Open
Add
Views
Tables
Charts
Layouts
Scripts
Attributes of Tracts.s
encumb.dbf
mdl.dbf
Attributes of Tracts.shp
Shape
Tract_id
Polygon 101-01 Federal
Polygon 101-02 Federal Land (Fee)
Polygon 101-03 Federal Land (Fee)
Polygon 101-04 Federal Land (Fee)
Polygon 101-05 State
Polygon 101-06 Private
Polygon 101-07 Federal Land (Fee)
Polygon 101-08
Polygon 101-09
Polygon 101-10
Polygon 102-01
Polygon 102-02
Polygon 102-03 Federal Land (Fee)
Polygon 102-04 Federal Land (Fee)
Polygon 102-05 Federal Land (Fee)
Same attribute
mdl.dbf
Alphacode Area_code Area_name Tract Landowner Conveyed Mdl_amt
CIRO 9585 CITY OF ROCKS NRESERVE 101-01 19881118 0.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-02 B.L.M. 19881118 0.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-03 40.00 B.L.M. 19881118 0.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-04 497.61 B.L.M. 19881118 0.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-05 640.00 STATE: ID 0.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-06 320.00 ESTATE OF TAYLOR, WALLACE 0.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-07 360.00 QUARTER CIRCLE K RANCH 19921105 54000.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-08 849.10 QUARTER CIRCLE K RANCH 19940105 170000.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-09 535.11 NICHOLSON, ALBERT E., ET UX 0.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-10 320.00 J. E. TRACY, INC. 19930629 120000.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-11 20.66 FAIRCHILD, JOHN W., ET AL 0.00
CIRO 9585 CITY OF ROCKS NRESERVE 101-12 20.66 FAIRCHILD, JOHN W. 0.00
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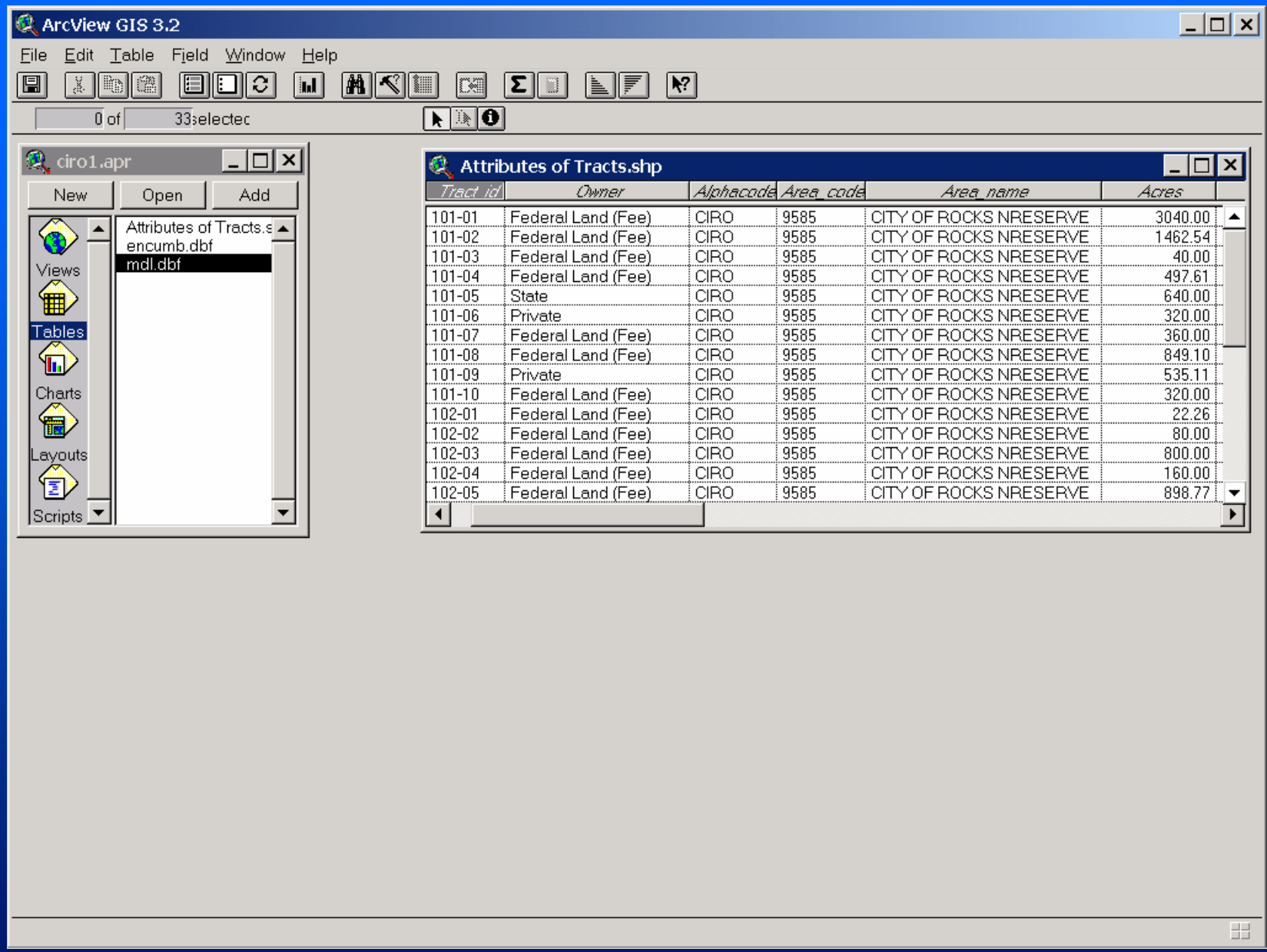
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File Edit Table Field Window Help
0 of 33 selected
ciro1.apr
New Open Add
Views
Tables
Charts
Layouts
Scripts
Attributes of Tracts.s
encumb.dbf
mdl.dbf
Attributes of Tracts.shp
Tract_id | Owner | Alphacode | Area_code | Area_name | Acres
101-01 | Federal Land (Fee) | CIRO | 9585 | CITY OF ROCKS NRESERVE | 3040.00
101-02 | Federal Land (Fee) | CIRO | 9585 | CITY OF ROCKS NRESERVE | 1462.54
101-03 | Federal Land (Fee) | CIRO | 9585 | CITY OF ROCKS NRESERVE | 40.00
101-04 | Federal Land (Fee) | CIRO | 9585 | CITY OF ROCKS NRESERVE | 497.61
101-05 | State | CIRO | 9585 | CITY OF ROCKS NRESERVE | 640.00
101-06 | Private | CIRO | 9585 | CITY OF ROCKS NRESERVE | 320.00
101-07 | Federal Land (Fee) | CIRO | 9585 | CITY OF ROCKS NRESERVE | 360.00
101-08 | Federal Land (Fee) | CIRO | 9585 | CITY OF ROCKS NRESERVE | 849.10
101-09 | Private | CIRO | 9585 | CITY OF ROCKS NRESERVE | 535.11
101-10 | Federal Land (Fee) | CIRO | 9585 | CITY OF ROCKS NRESERVE | 320.00
102-01 | Federal Land (Fee) | CIRO | 9585 | CITY OF ROCKS NRESERVE | 22.26
102-02 | Federal Land (Fee) | CIRO | 9585 | CITY OF ROCKS NRESERVE | 80.00
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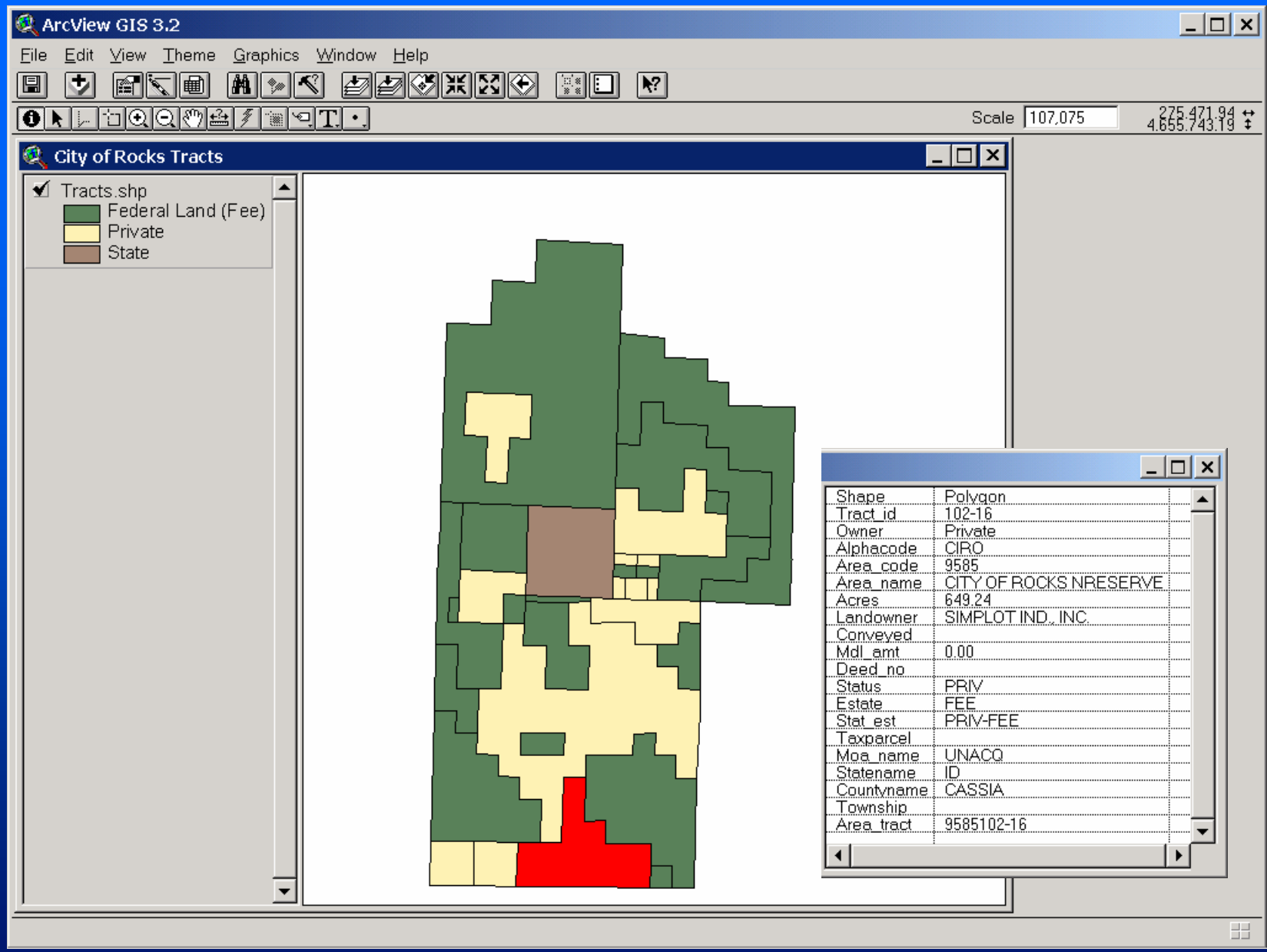
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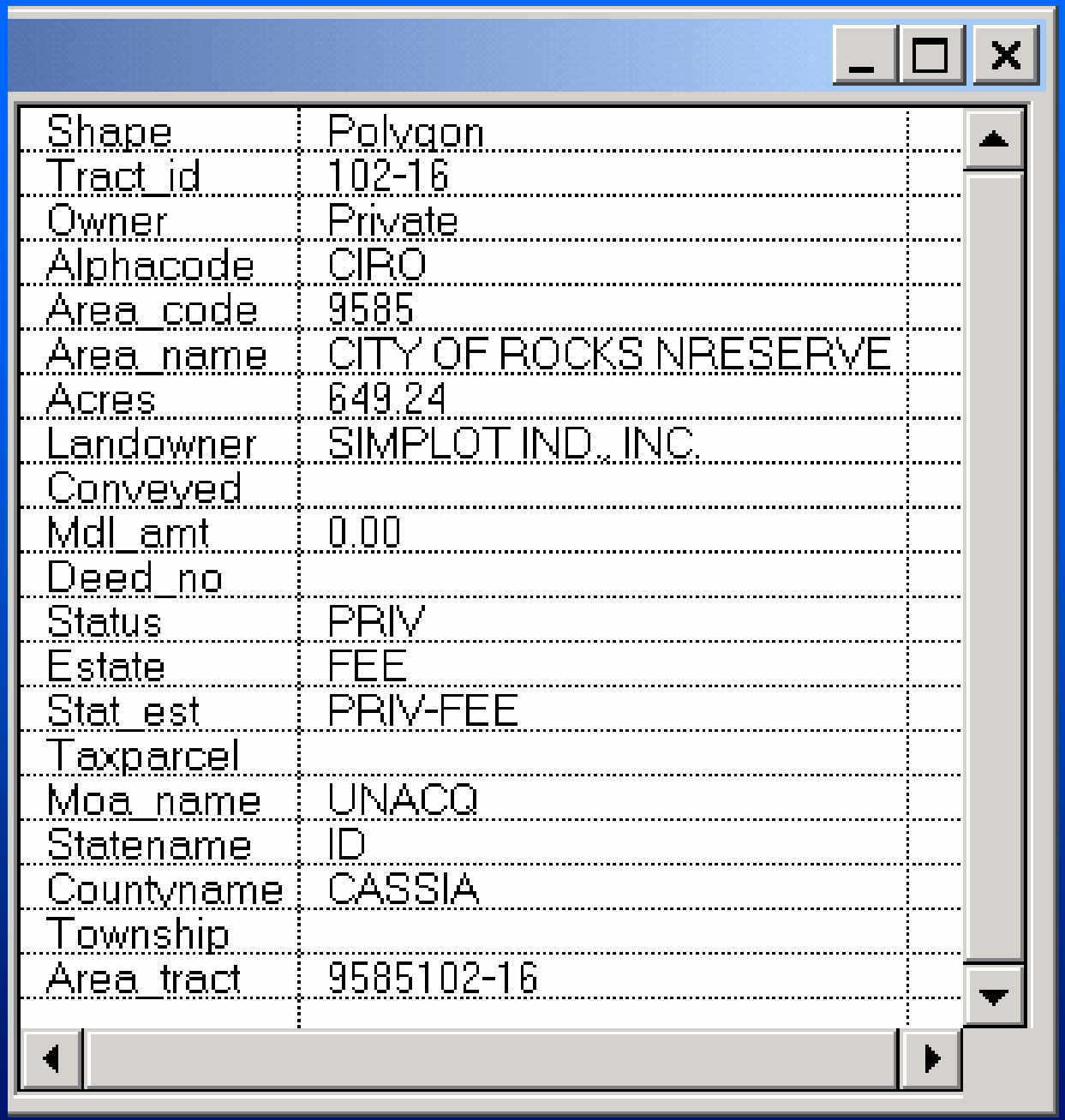
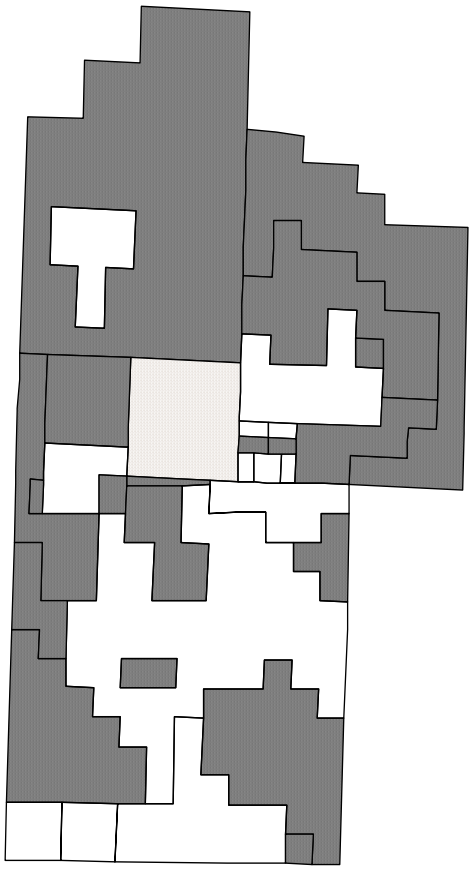
City of Rocks Tracts
Tracts.shp
Federal Land (Fee)
Private
State
Shape Polygon
Tract_id 102-16
Owner Private
Alphacode CIRO
Area_code 9585
Area_name CITY OF ROCKS NRESERVE
Acres 649.24
Landowner SIMPLOT IND., INC.
Conveyed
Mdl_amt 0.00
Deed_no
Status PRIV
Estate FEE
Stat_est PRIV-FEE
Taxparcel
Moa_name UNACO
Statename ID
Countyname CASSIA
Township
Area_tract 9585102-16



Shape	Polygon
Tract_id	102-16
Owner	Private
Alphacode	CIRO
Area_code	9585
Area_name	CITY OF ROCKS NRESERVE
Acres	649.24
Landowner	SIMPLOT IND., INC.
Conveyed	
Mdl_amt	0.00
Deed_no	
Status	PRIV
Estate	FEE
Stat_est	PRIV-FEE
Taxparcel	
Moa_name	UNACQ
Statename	ID
Countyname	CASSIA
Township	
Area_tract	9585102-16



DEED	TRACT	OWNER	ACRES	INT.

LEGEND

- FEDERAL LAND (FEE)
- FEDERAL LAND (LESS THAN FEE)
- PUBLIC LAND
- 10101 TRACT NUMBER
- PARK BOUNDARY
- TRACT BOUNDARY

GENERAL NOTES

1. Property ownership data compiled from deeds, plats, surveys, and other source data are shown on this base. This is not an engineering quality drawing and should be used for general scaling purposes only. Acreages have been derived from deeds, surveys, and office compilations.

C.O. NO.	DATE	C.O. NO.	DATE	C.O. NO.	DATE	C.O. NO.	DATE

ESTABLISHED: MONTH XX, 199X
BOUNDARY CHANGE: MONTH 199X

DATE DRAWN: MONTH 199X
DATE REVISED: MONTH 199X

MAPPED BY: COLUMBIA CASCADES LAND RESOURCES PROGRAMCENTER

30 Meters = 98.42 Feet

N

DN. BY: FS	CK. BY: FS
APP. BY:	
REGION: COLUMBIA CASCADES	
DRAWING NO:	
SHEET: 1 OF 1	

UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
LAND RESOURCES PROGRAMCENTER

CITY OF ROCKS NATIONAL RESERVE

CASSIA COUNTY
IDAHO

TITLE: SEGMENT 02

Recap

Spatial data with feature attributes can be tied to other databases, using a common link.

Map symbols can be specified to the user's needs based on attributes.

Cultural Landscape Protection at Whitman Mission

The 100-acre park is largely surrounded by farmland...

...for now.

GMP Issues

- The park should remain a quiet, reflective place
- Development is coming
- Subdivision already planned near the park
- Desire to protect the park's foreground viewshed

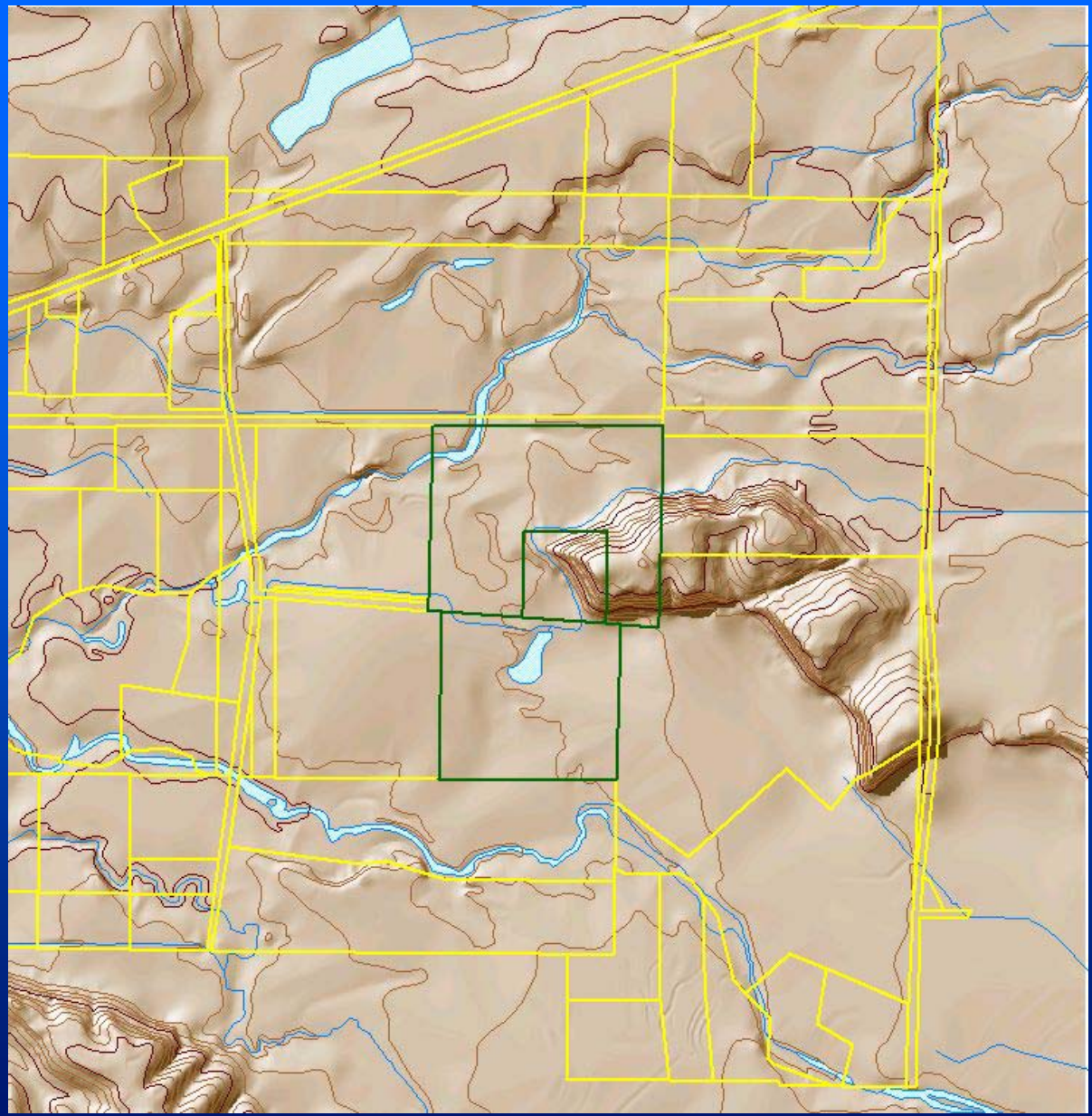
What's a Viewshed?

- The part of the earth's surface visible from one or more points on or above the surface.
- What you can see from where you're standing on the ground (or on something like a tower).

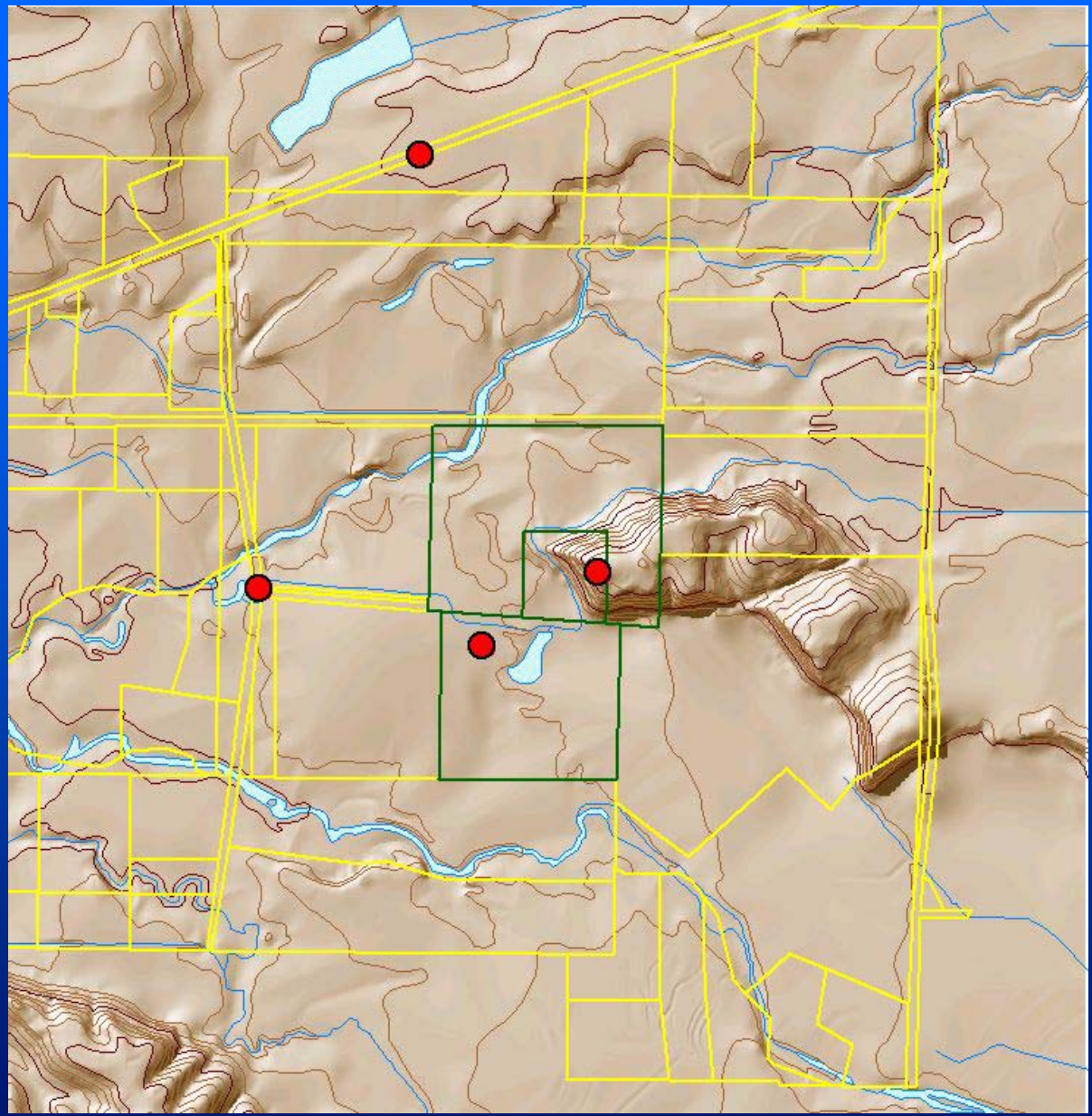
Viewshed Analysis Used

- Ten meter DEM
- Based on USFS landscape characteristics model
- Foreground defined as up to 1/2 mile from viewer
- Four view points chosen, based on high visitation
- Vegetation not considered in viewshed calculation

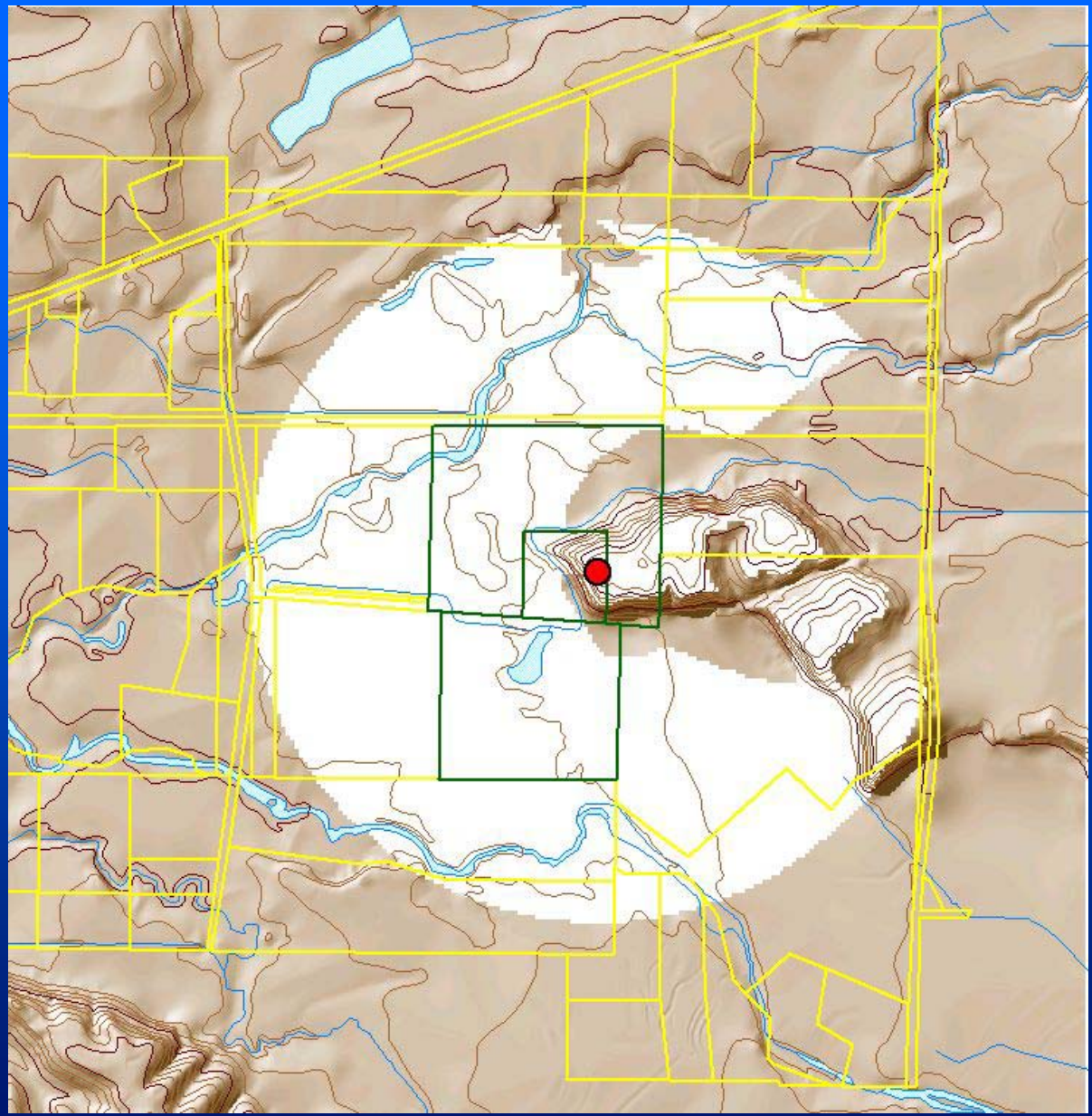
DEM
and parcels



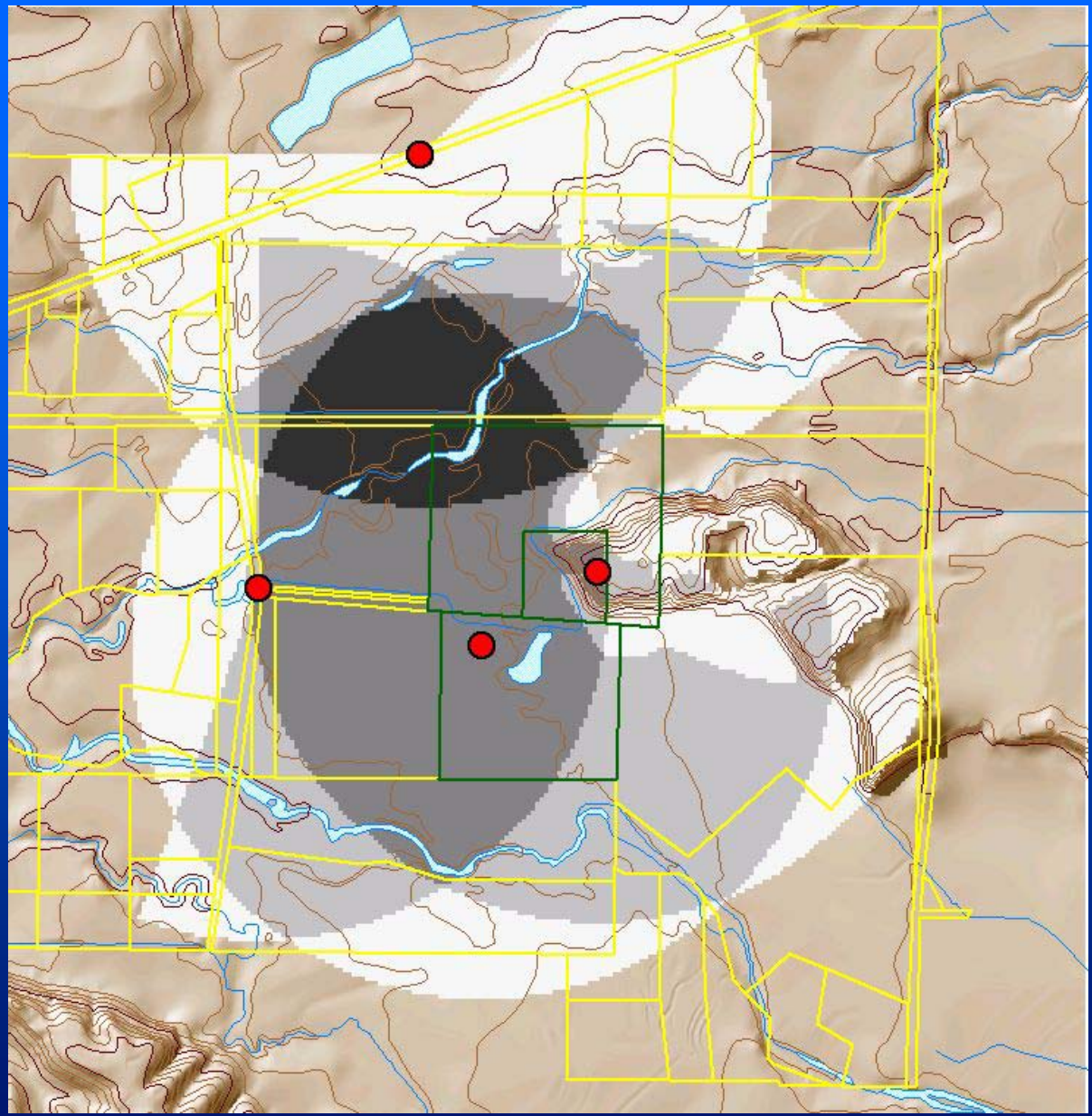
Viewpoints



One viewshed



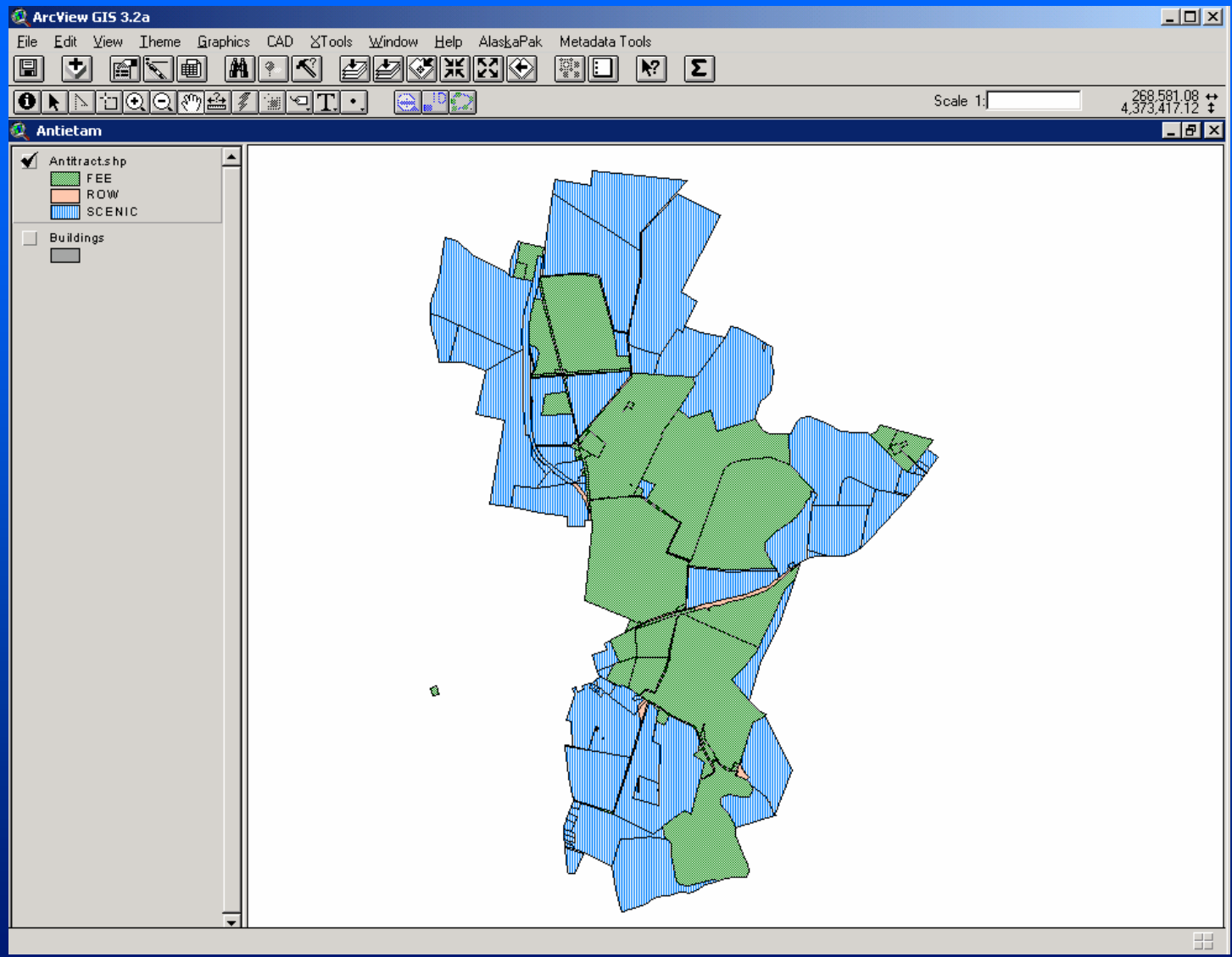
Four viewsheds



Recap

Spatial analysis is made easier (or even possible) with GIS.

Database Integration at Antietam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File Edit View Theme Graphics CAD XTools Window Help AlaskaPak Metadata Tools
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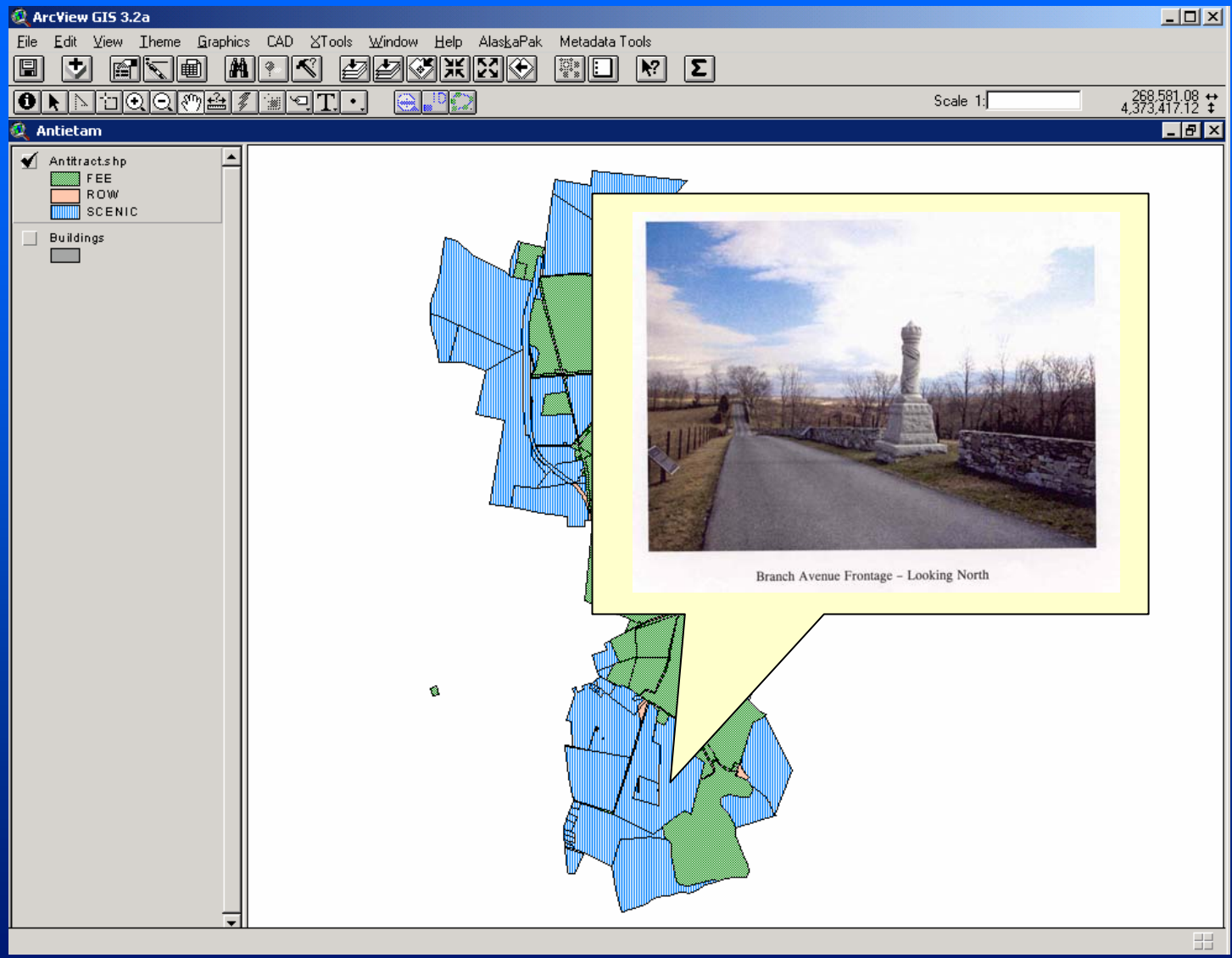
4,373,417.12
Antietam
Antitract.shp
FEE
ROW
SCENIC
Buildings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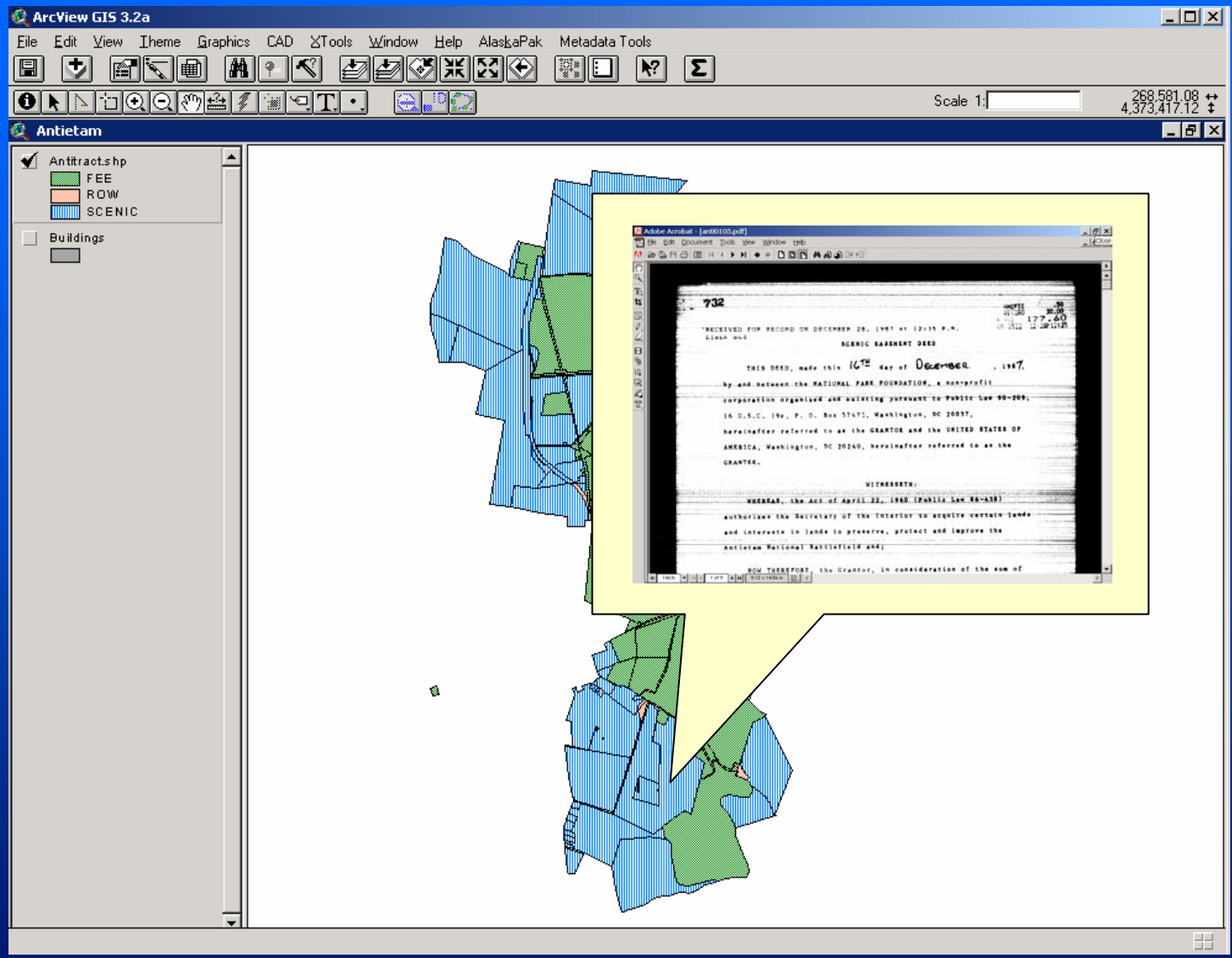
Antietam
Antitract.shp
FEE
ROW
SCENIC
Buildings
Branch Avenue Frontage – Looking North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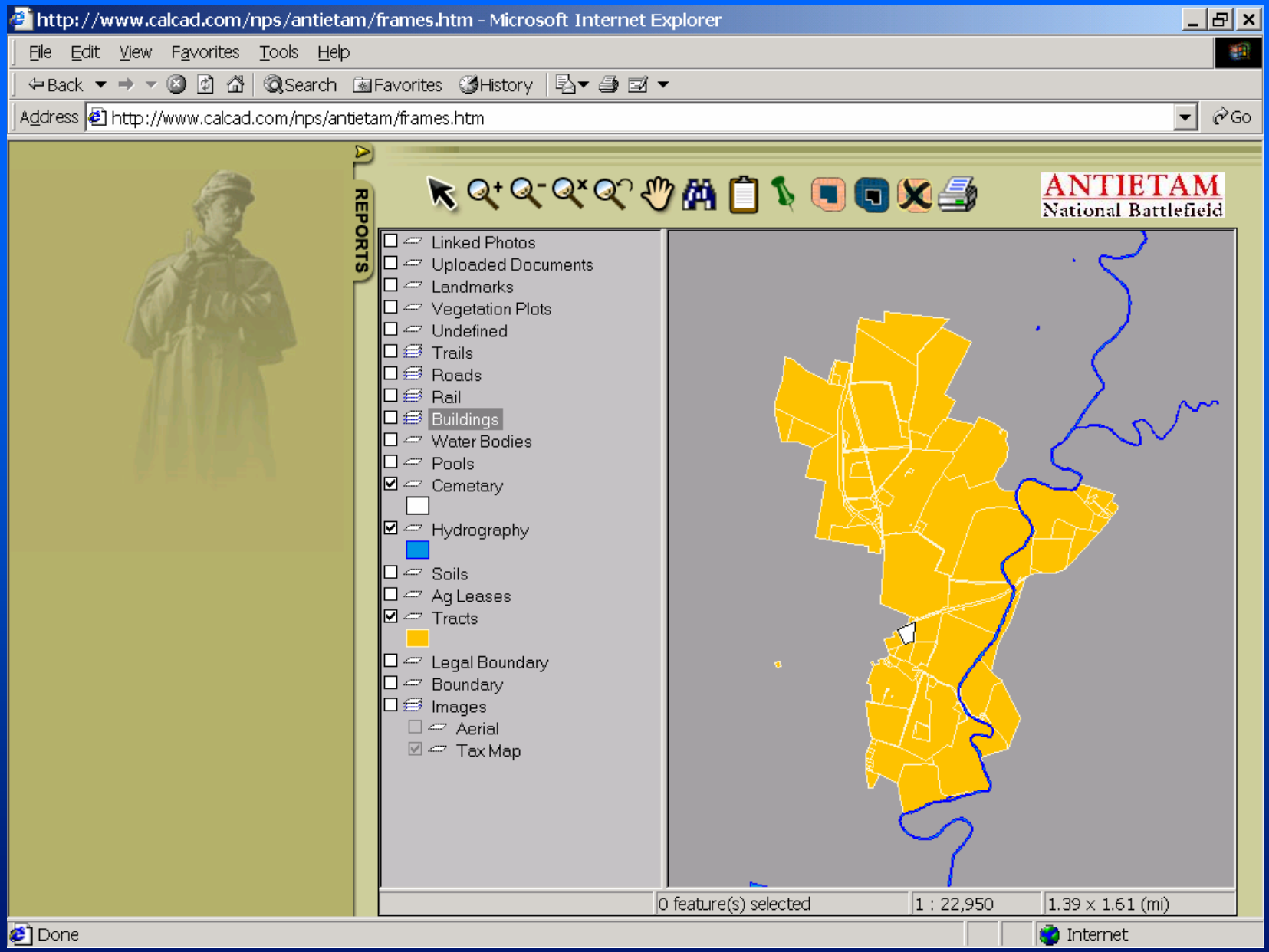
4,373,417.12
Antietam
Antitract.shp
FEE
ROW
SCENIC
Buildings
732
SCENIC EASEMENT DEED
THIS DEED, made this 16TH day of DECEMBER , 1987,
by and between the NATIONAL PARK FOUNDATION, a non-profit
corporation organized and existing pursuant to Public Law 90-209,
16 U.S.C. 19e, P. O. Box 57477, Washington, DC 20037,
hereinafter referred to as the GRANTOR and the UNITED STATES OF
AMERICA, Washington, DC 20240, hereinafter referred to as the
GRANTEE.
WITNESSETH:
WHEREAS, the Act of April 22, 1960 (Public Law 86-638)
authorizes the Secretary of the Interior to acquire certain lands
and interests in lands to preserve, protect and improve the
Antietam National Battlefield and;
NOW THEREFORE, the Grantor, in consideration of the sum of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File Edit View Favorites Tools Help
Back Search Favorites History
Address http://www.calcad.com/nps/antietam/frames.htm
Go
REPORTS
ANTIETAM
National Battlefield
Linked Photos
Uploaded Documents
Landmarks
Vegetation Plots
Undefined
Trails
Roads
Rail
Buildings
Water Bodies
Pools
Cemetary
Hydrography
Soils
Ag Leases
Tracts
Legal Boundary
Boundary
Images
Aerial
Tax Map
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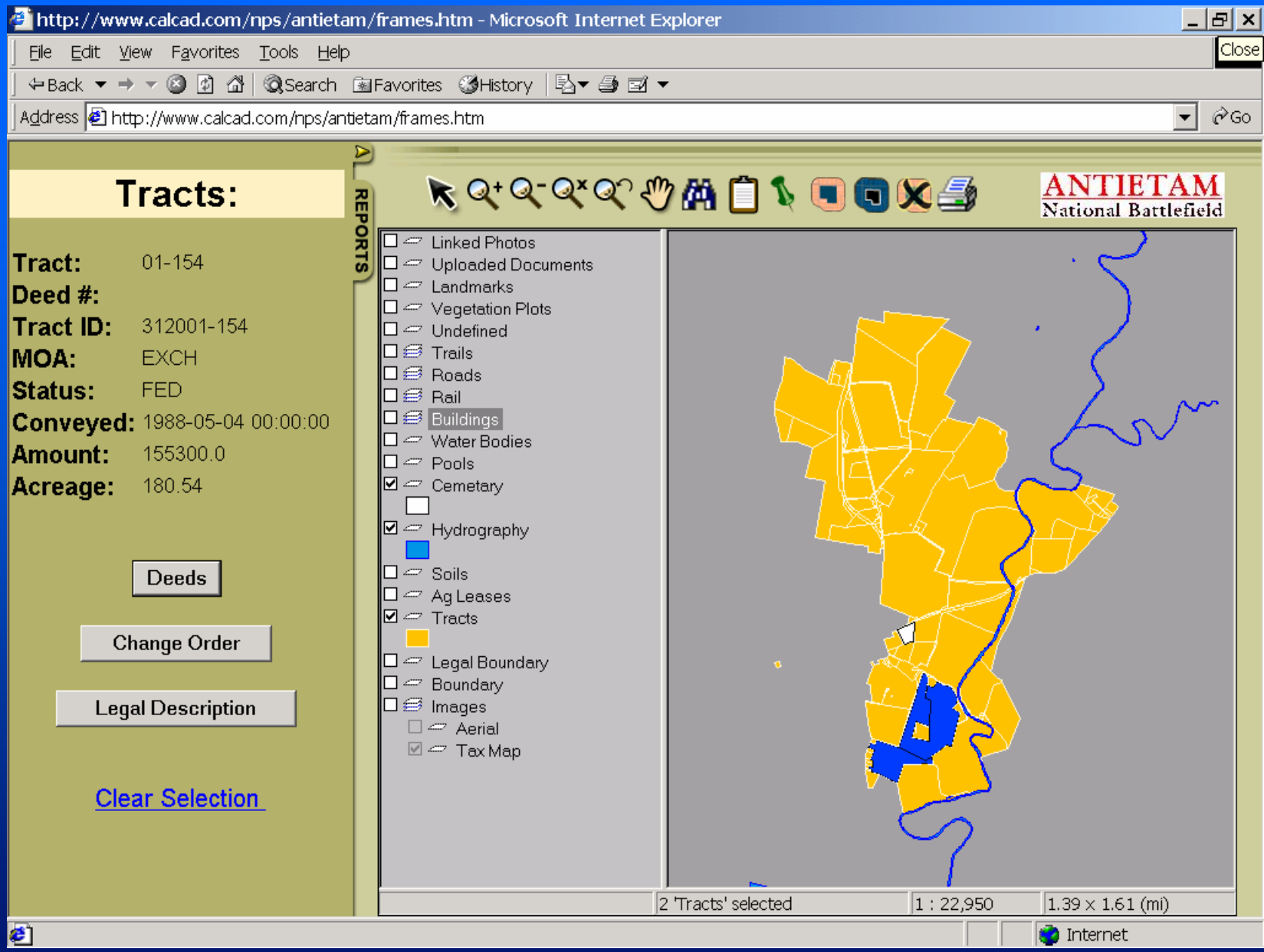
1.39 x 1.61 (mi)
Done
Internet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Deed #:
Tract ID: 312001-154
MOA: EXCH
Status: FED
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Acreage: 180.54
Deeds
Change Order
Legal Description
Clear Selection
REPORTS
ANTIETAM
National Battlefield
Linked Photos
Uploaded Documents
Landmarks
Vegetation Plots
Undefined
Trails
Roads
Rail
Buildings
Water Bodies
Pools
Cemetary
Hydrography
Soils
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Boundary
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Aerial
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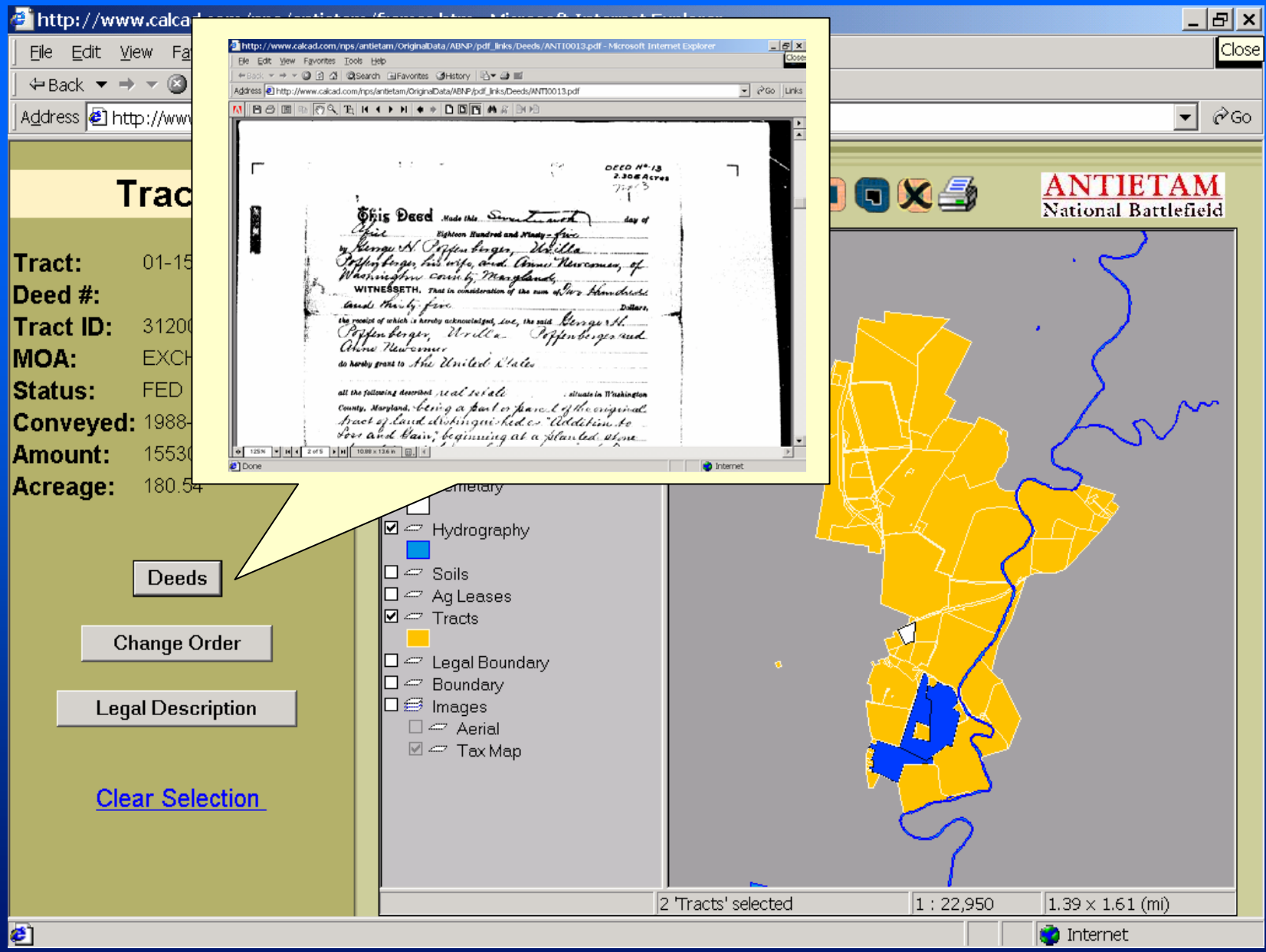
1.39 x 1.61 (mi)
Internet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Deed #:
Tract ID:
MOA:
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Conveyed:
Amount:
Acreage:
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Ag Leases
Tracts
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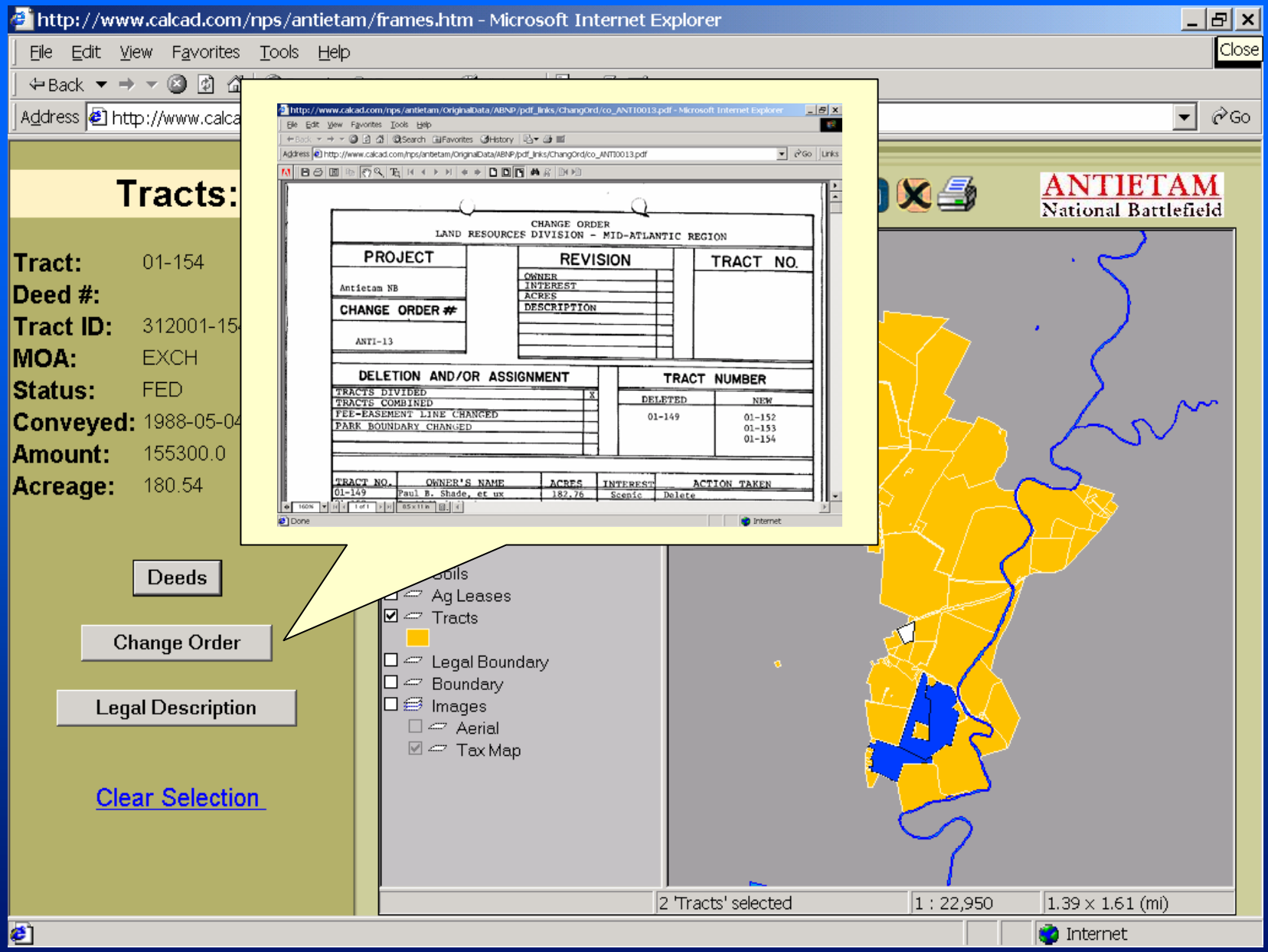
Boundary
Images
Aerial
Tax Map
ANTIETAM
National Battlefield
2 'Tracts' selected
1 : 22,950
1.39 x 1.61 (mi)
Internet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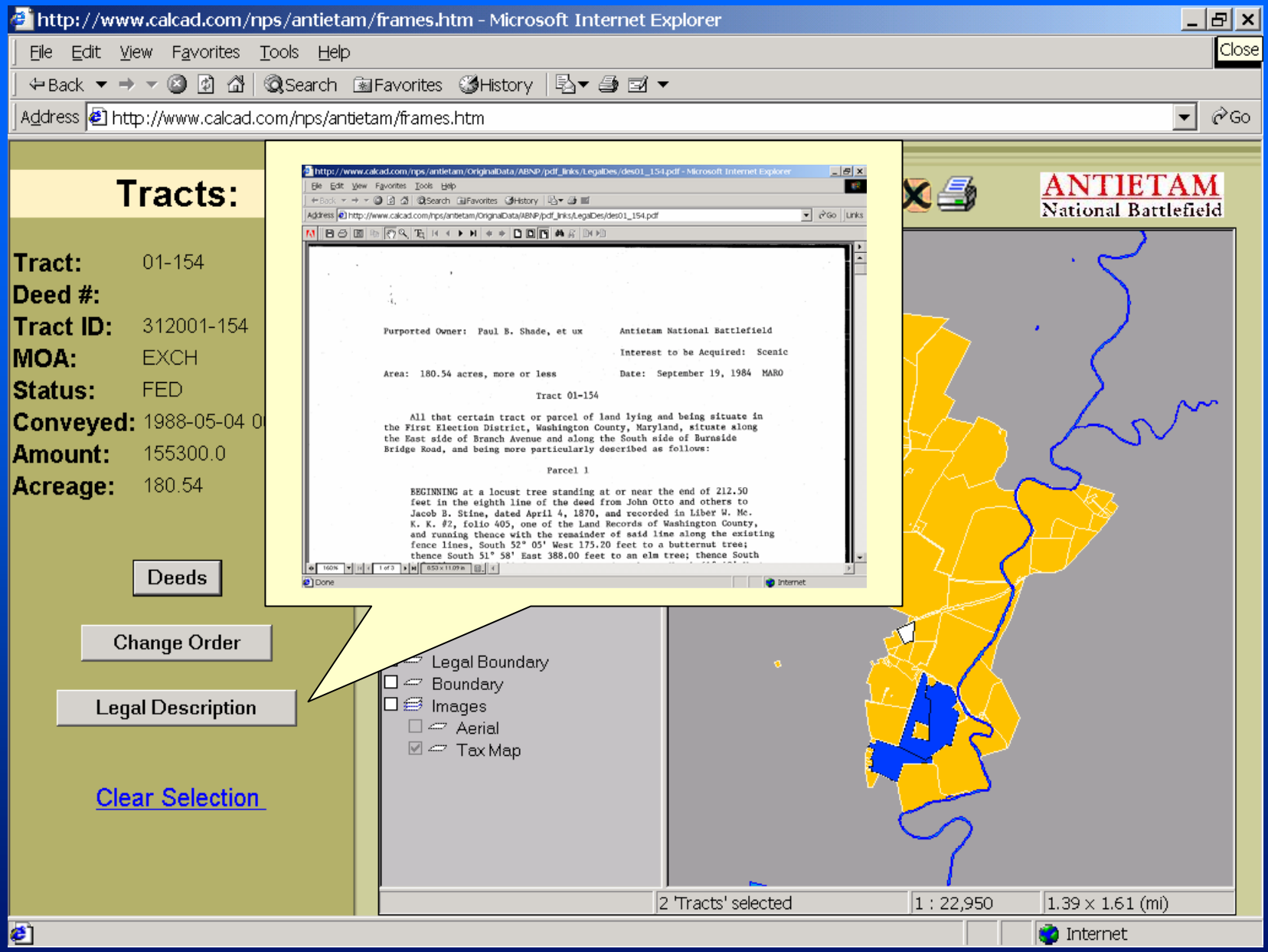
Deed #:
Tract ID: 312001-15
MOA: EXCH
Status: FED
Conveyed: 1988-05-04
Amount: 155300.0
Acreage: 180.54
Deeds
Change Order
Legal Description
Clear Selection
CHANGE ORDER
LAND RESOURCES DIVISION - MID-ATLANTIC REGION
PROJECT
Antietam NB
REVISION
OWNER
INTEREST
ACRES
DESCRIPTION
TRACT NO.
CHANGE ORDER #
ANTI-13
DELETION AND/OR ASSIGNMENT
TRACTS DIVIDED
TRACTS COMBINED
FEE-EASEMENT LINE CHANGED
PARK BOUNDARY CHANGED
TRACT NUMBER
DELETED
NEW
01-149
01-152
01-153
01-154
TRACT NO.
OWNER'S NAME
ACRES
INTEREST
ACTION TAKEN
01-149
Paul B. Shade, et ux
182.76
Scenic
Delete
Ag Leases
Tracts
Legal Boundary
Boundary
Images
Aerial
Tax Map
ANTIETAM
National Battlefield
2 'Tracts' selected
1 : 22,950
1.39 x 1.61 (mi)
Internet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Deed #:
Tract ID: 312001-154
MOA: EXCH
Status: FED
Conveyed: 1988-05-04 0
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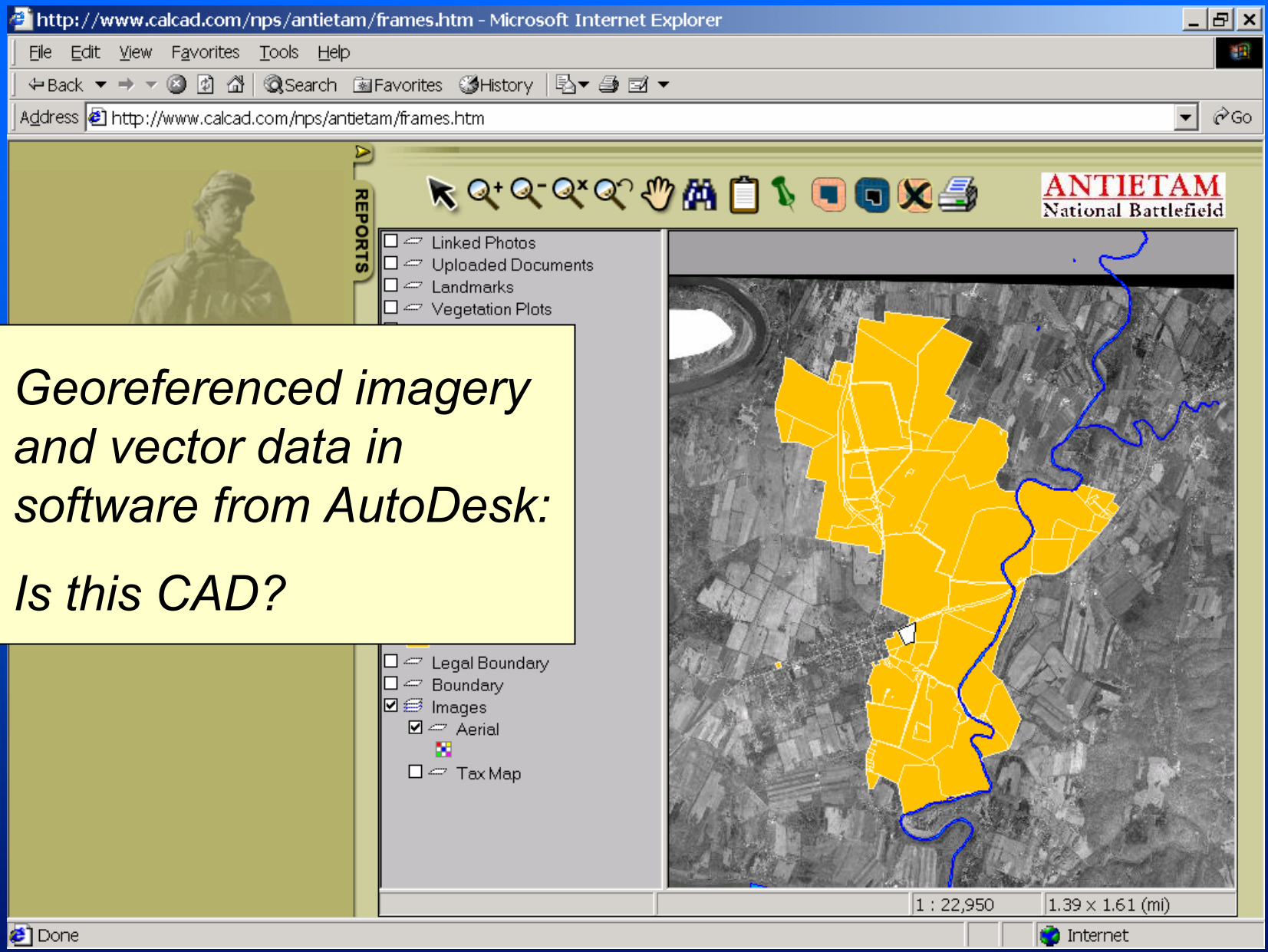
Deeds
Change Order
Legal Description
Clear Selection
http://www.calcad.com/nps/antietam/OriginalData/ABNP/pdf_links/LegalDes/des01_154.pdf - Microsoft Internet Explorer
Purported Owner: Paul B. Shade, et ux
Antietam National Battlefield
Interest to be Acquired: Scenic
Area: 180.54 acres, more or less
Date: September 19, 1984 MARO
Tract 01-154
All that certain tract or parcel of land lying and being situate in the First Election District, Washington County, Maryland, situate along the East side of Branch Avenue and along the South side of Burnside Bridge Road, and being more particularly described as follows:
Parcel 1
BEGINNING at a locust tree standing at or near the end of 212.50 feet in the eighth line of the deed from John Otto and others to Jacob B. Stine, dated April 4, 1870, and recorded in Liber W. Mc. K. K. #2, folio 405, one of the Land Records of Washington County, and running thence with the remainder of said line along the existing fence lines, South 52° 05' West 175.20 feet to a butternut tree; thence South 51° 58' East 388.00 feet to an elm tree; thence South
Done
Internet
ANTIETAM
National Battlefield
Legal Boundary
Boundary
Images
Aerial
Tax Map
2 'Tracts' selected
1 : 22,950
1.39 x 1.61 (mi)
Internet



Georeferenced imagery and vector data in software from AutoDesk:

Is this CAD?

Recap

GIS can integrate multiple databases, which can be made available to everyone -- including the public.

Review

- Georeferenced data allows synthesis of multiple layers
- Feature attributes can link to other data
- Symbols can be chosen based on attributes
- Analysis is easier
- Other types of information can be tied to spatial data on a LAN or on the web

GIS Benefits to the Land Resources Program

- Facilitating obtaining and tracking real estate.
- Allowing analysis of high-priority acquisitions.
- Integrating a variety of lands-related data, both spatial and non-spatial.

Credits

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